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## Carcinoma of the Thyroid Gland

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### SUMMARY

*Sixty-three cases of cancer of the thyroid gland were studied. In 16 cases the cancer arose in an adenoma—without clinical evidence of carcinoma in any instance.*

*Hoarseness, dyspnea and dysphagia, fixation and hardness, and slow enlargement of the lateral lymph nodes were the most common diagnostic signs and symptoms.*

*The most common avenue of spread is the lymphatic system. In two-thirds of the cases in which metastasis occurred, the cervical nodes were involved.*

*Prognosis is related to the histologic type of the lesion.*

*Of 35 patients observed for five years after treatment, ten had no evidence of disease at the end of that time. Twenty were followed for ten years and four of them apparently were free of cancer.*

*The trend in treatment is toward more extensive surgical dissection. In inoperable cases, irradiation has been used with some benefit.*

cal evaluation of results cannot be stressed. Rather, emphasis is put on the knowledge gathered on the course and development of the disease as related to the various histologic types, the location of cervical metastases, and the fate of patients with cancers that arose in simple adenomas.

### INCIDENCE

The percentage of cases in which nodular goiter becomes cancerous seems to vary from one part of the country to another.<sup>3,4</sup> In Figure 1, the relative incidence reported in various parts of the United States is shown. The variations in figures are probably owing to the nature of the material studied, the small number of cases involved, and the tendency for patients with certain kinds of disease to gravitate to particular centers. Crile<sup>5</sup> noted that the surgical material studied represented a screened and selected incidence. Inaccuracy in classification of goiters adds to the confusion. Finally, autopsy material does not provide a true index. In the period 1944 to 1948, covered by Cole and co-workers,<sup>3</sup> there were 675 autopsies at the Illinois Research Hospital. In only two cases was thyroid cancer present. However, during this same period, 16 patients with thyroid cancer were operated upon. Of this number, 11 were known to be dead but autopsy was not done on any of them at the Illinois Research Hospital.

Carcinoma arising in diffuse toxic goiter is very rare,<sup>4,10,27</sup> and toxicity occurs infrequently in patients with thyroid cancer. When toxicity is present, as Friedell<sup>9</sup> has described, the carcinomatous area is not usually responsible for the hyperthyroidism.

In the present series of 63 cases of thyroid cancer, the growth arose from preexisting, clinically evident adenomas in 16 cases, or 25 per cent, an experience identical with that reported by other observers.<sup>3,18,21</sup>

THE wide differences in the clinical manifestations of cancer of the thyroid gland have created considerable divergence of opinion as to its true pathologic character and confusion as to proper treatment. The present study is based on 63 cases observed at the Stanford University Hospitals since 1921. Because of the variety of methods of treatment employed, with no one method predominant, statisti-

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Figure 1.—Incidence of thyroid cancer in cases of nodular goiter in various areas of the United States. The figures are from surgical experience unless otherwise noted. The numbers in parentheses are reference numbers.

#### CLASSIFICATION

It is known that there are parallels between the morphologic pattern of thyroid tumors and the clinical manifestations associated with them and that the clinical picture varies with the type of tumor. The classification (Table 1) devised by Warren<sup>28</sup> and modified slightly by Means<sup>19</sup> and others,<sup>8,14</sup> enables the clinician to gauge the clinical course once the histologic nature of the lesion is known.

In some cases the clinical course associated with papillary tumor is extremely long, and as a consequence such tumors are considered of low grade malignancy. Papillary tumors occur most frequently in persons in the fourth and fifth decades of life. Thyroid cancers of youth and childhood are preponderantly papillary.

Certain tumors of the alveolar type are not diagnosed as cancer in pathologic examination of the operative specimen, owing to their extremely orderly structure. Months or years later a distant metastatic deposit may occur in a bone or elsewhere—a so-called "benign metastasizing struma."

Giant cell tumors of the thyroid gland are extremely malignant, and patients with this kind of tumor usually die soon. Frequently death is caused by obstruction of the trachea or esophagus, and, although visceral metastases occur, there is rarely time for them to develop. In the present series, two patients had giant cell tumors and died in three and six months respectively. The majority of patients had papillary adenocarcinoma.

#### METASTASES

Although thyroid cancers frequently invade the blood stream, the most common avenue of spread is through the lymphatic system. Lymph-borne metastases occur first in the cervical and later in the mediastinal nodes. The cervical lymph nodes of predilection are those palpated laterally, in the posterior triangle of the neck along the transverse cervical

TABLE 1.—Classification of Thyroid Cancer<sup>8, 14, 19, 28</sup>

- I. Low Grade or Potential Cancer:
  1. Adenoma with blood vessel invasion.
  2. Papillary cystadenoma with blood vessel invasion.
- II. Moderately Malignant:
  1. Papillary adenocarcinoma.
  2. Alveolar adenocarcinoma.
  3. Hürthle-cell adenocarcinoma.
  4. Solid adenocarcinoma.
- III. Highly Malignant:
  1. Small cell carcinoma (carcinoma simplex).
  2. Giant cell carcinoma.
  3. Epidermal carcinoma.
  4. Fibrosarcoma.
  5. Malignant lymphoma.

chain, or the nodes of the middle and superior groups along the internal jugular vein. More rarely, metastases occur in nodes within the submaxillary triangle. In several cases metastasis to an axillary node has been observed. Three patients in the present series had such metastases in addition to spread to other sites.

There were 30 patients in the present series who had metastases when first observed. Of this number, 20 had metastases to the cervical nodes only. In 18 cases in which an accurate description of the nodal metastasis was given, ten patients had involvement of the transverse cervical group of nodes, seven of the middle and superior jugular groups, and one of the submaxillary triangle group.

In several cases in which cancer in laterally placed cervical lymph nodes was observed, a diagnosis of cancer arising in lateral aberrant thyroid tissue was erroneously made. After many years of study, it is now realized that the growths in those nodes are metastatic from a small, primary cancer tucked away in the thyroid gland, usually not palpable and not known to be present until the lobe is rotated out of its bed.

## DIAGNOSIS

A fixed or hard tumor causing symptoms of pressure on the trachea or esophagus is usually cancer. The signs and symptoms most frequently noted in the present series were: Fixation, especially to the underlying trachea; hardness, often described as "stony hardness"; hoarseness, without soreness or pain; slow, asymptomatic enlargement of lateral lymph nodes; and later dyspnea and dysphagia (Table 2). A history of a long-standing solitary nodule which suddenly increases in size is significant. One patient reported that about six months

years, only one had a papillary tumor. One had an adenocarcinoma and two had unclassified carcinoma.

Because it is frequently stated that tumors of the thyroid gland may be present for years and therefore cannot be very malignant, particular attention was given the records of 23 patients with accurate histories showing the presence of a tumor two years or more before the first observation by a physician. Four of them were dead within a year, seven within two years. One patient had had a lump in the right lobe of the thyroid gland for 40 years. Only partial removal of the tumor was possible at operation. The pathologic diagnosis was papillary adenocarcinoma. Radioactive iodine and x-ray therapy were of no

TABLE 2.—Clinical Data on 63 Cases of Thyroid Cancer

Age: 30 cases were between 40 and 59 years; extreme, 6 to 86 years.	
Sex: 26 males; 37 females.	
Symptoms of toxic thyroid gland: 7 cases.	
Metastases (when observed on admission):	
Total cases .....	30
Cervical node .....	20
Skeletal and visceral.....	10
Recurrent tumor (following previous surgical treatment): 13 cases.	
Occurring as adenomas:	
Single .....	12
Multiple .....	4
Total.....	16
Diagnosed preoperatively: 32.	
Duration of tumor*—primary and/or metastatic (51 cases):	
Present less than 6 months.....	17
Present less than 12 months.....	27
Present less than 24 months.....	32

\* As determined from case history.

before she sought medical advice she noticed enlargement of a nodule which had been present for ten years. Six months after the first examination the patient died of widely disseminated metastases from a giant cell carcinoma of the thyroid.

## RESULTS

The average five-year survival rate for patients with cancer of the thyroid gland is about 32 per cent,<sup>3</sup> although five-year survival rates below 10 per cent have been reported.<sup>7,29</sup> However, the slow growth of some of the tumors and the ten-year survival of patients with metastases compels abandonment of the "five-year cure" viewpoint in evaluating thyroid cancer.<sup>30</sup> The results in the present series are listed in Table 3. Twenty of the 44 patients who survived a year or more without disease had papillary adenocarcinoma, seven had adenocarcinoma, two had benign metastasizing struma (alveolar cell type), and ten had carcinoma of unclassified type (Chart 1). Of the ten patients who survived beyond five years without evidence of disease, five had papillary adenocarcinoma, two had adenocarcinoma and three had unclassified carcinoma. A significant observation is that of the four patients surviving ten

CHART 1

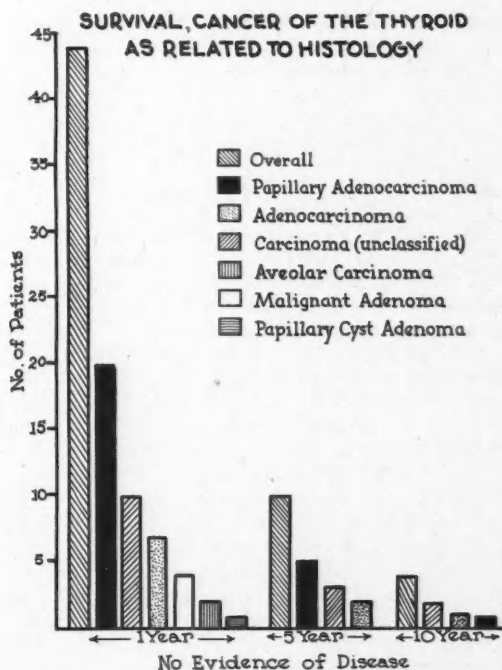


TABLE 3.—Results in 60 Cases of Cancer of the Thyroid Gland with Follow-up of One Year or More

Duration Follow-up (years)	No. Patients	NED*	AWD*	LTO*	DOC*	(Per cent) Det.†	(Per cent) Indet.†
1	60	44	4	0	1	73	80
3	41	18	3	1	1	44	49
5	35	10	0	1	1	29	34
10	20	4	0	2	1	20	35

\* Abbreviations: NED, no evidence of disease; AWD, alive with disease; LTO, lost to observation; DOC, died of other cause.

† Det. (Determinate): Known to be living without evidence of cancer. Indet. (Indeterminate): Assuming that patients lost to observation are still living, without evidence of cancer, and that those known to have died of other causes would have been free of cancer if they had lived to the end of the period indicated.

help. Eighteen months after the first examination the patient had widespread, painful metastases and obviously was in the terminal phase of the disease. Another patient had a thyroid tumor that had been present for 25 years. The report on a biopsy specimen was adenocarcinoma, but the tumor was deemed inoperable. Radioactive iodine, then x-ray therapy were given without benefit. A year after the first examination there was generalized metastasis and the patient was moribund. In another case, that of a woman who had had a goiter for 20 years, thyroidectomy was attempted but only subtotal removal could be accomplished. X-ray therapy was of no benefit. The pathologist reported anaplastic carcinoma. The patient died of cancer two months after the first examination.

In the total series of 63 patients, 24 died of cancer, 21 of them within five years. Seven more were alive, with cancer, at the time of this report and were expected to die within five years of the time they were first observed. Four patients died of other causes. Although in some cases patients may survive for relatively long periods, half of the patients in this series died or were expected to die within five years.

#### CANCER ARISING IN ADENOMAS

Many authorities contend that most thyroid cancers arise from nodular or adenomatous goiters.<sup>4,13,16,17,28</sup> However, the rapid, diffuse enlargement of the entire gland and the histologic features in some cases controvert that assumption. Pemberton<sup>21</sup> stated that the exact relationship is difficult to establish since the tumor may overgrow and obscure the original site of the cancer. Nevertheless, the relatively favorable results following adequate removal of cancer arising in an adenoma<sup>13,14</sup> as compared with the short survival of patients with the more diffuse tumors, suggests that there are two kinds of thyroid cancers. When the presence of cancer is obvious, the prognosis is poor. The highest survival rate is among patients with asymptomatic cancer within an adenoma. Much of the confusion in treatment and results springs from controversy in connection with such lesions. On the one hand it is stated that lesions of this kind are not true cancers, and on the other that the malignancy of such lesions is far underestimated.

Table 4 shows some of the clinical features and results in the 16 cases in this series in which cancer arose in a clinically evident adenoma.

#### TREATMENT

It is not possible to evaluate any one method of treatment on the basis of experience in the present series, but the trend is toward a more radical approach,<sup>3,8,16,17,26,29,31</sup> the ultimate being hemithyroidectomy (or total thyroidectomy if necessary) in continuity with radical neck dissection. Total lobectomy with frozen section rather than adenectomy is recommended for solitary tumors. Not only will this remove a malignant tumor more adequately, but

it is felt that the presence of one adenoma often results in the formation of another within the same lobe, and the problem of recurrence has then to be dealt with. If the tumor is situated in the isthmus, a wide resection including one lobe or portions of both lateral lobes is advisable. Multiple adenomas are treated by total or near total thyroidectomy.

Neck dissection is reserved for use in cases in which the primary tumor has invaded the capsule, has involved the surrounding musculature, or has metastasized to cervical nodes. It includes removal of the internal jugular vein and sternocleidomastoid muscle and also (in view of metastasis to this area observed recently in several cases of thyroid cancer) dissection of the submaxillary triangle. The musculature overlying the involved lobe is removed in continuity with the contents excised in the neck dissection and lobectomy. In cases in which the growth is extensive it may be unwise to preserve the recurrent laryngeal nerve—better to sacrifice this structure in the interest of cleaner dissection.

There is by no means universal agreement upon this method of treatment. Crile<sup>5</sup> and Black<sup>1</sup> are not convinced that radical resection will add materially to the ultimate result. The problem of early invasion of veins is also to be considered, but the invasion of thyroid tumors into a vein may remain localized for a long time, a true embolus not forming for months or even years. The long survival of patients who have thyroid cancer with vein invasion is pertinent. The tendency for recurrent thyroid cancer to extend within veins and the need for wide and radical removal of the veins together with the tumor has been well stressed by Graham.<sup>11,12</sup>

If the tumor has grown into the thyroid cartilage on one side, removal of the cartilage is preferable to cutting across invaded tissue. As is known, thyroid cancer grows backward into the trachea and esophagus, but it should be pointed out that frequently these structures will be attached to the cancer, without actually being involved by it.<sup>16</sup> In an extensive neck operation requiring much dissection across the tracheal bed, tracheotomy at the close of the procedure is advisable.

#### RADIATION THERAPY

Although the treatment of thyroid cancer is primarily a surgical problem, radium and x-ray treatment can be effective against tumors of certain types, particularly papillary tumors. When the surgeon feels confident that no cancer remains following operation, there appears to be no reason for irradiation of the postoperative field as a prophylactic measure. If residual disease is present, accurate roentgen therapy to the diseased area has proved of help when given in large enough amounts. As such therapy, like any other, is not without sequelae, it should not be undertaken lightly. Surgical and x-ray treatment may be combined in otherwise hopeless cases for possible palliation. In the present series three patients who were treated with x-ray alone because they were deemed inoperable lived for three, four and five years respectively.



Radioactive iodine has given encouraging results in the treatment of toxic thyroid disease if the up-take of  $I^{131}$  by the thyroid gland is large. Unfortunately, in only a few cases will the cancer pick up radioactive iodine, and even in those few the amount is often too small to be of therapeutic value. Apparently the faculty of up-take possessed by a normal or toxic thyroid gland is lost when carcinoma develops.<sup>3</sup> Except in an occasional case, therefore, radioactive iodine in its present form will contribute very little to the therapy of thyroid cancer.

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#### REFERENCES

1. Black, B. M.: Surgical treatment of carcinoma of the thyroid gland, *Tr. Am. Assoc. Study of Goitre*, 1947, pg. 34.
2. Brenizer, H. C., and McKnight, R. B.: True adenomas and their relation to cancer, *Tr. Am. Assoc. Study of Goitre*, 1940, pg. 176.
3. Cole, W. H., Slaughter, D. P., and Rossiter, L. J.: The potential danger of nontoxic goitre, *J.A.M.A.*, 127:883, April 7, 1945.
4. Cole, W. H., Slaughter, D. P., and Majarakis, M. S.: Carcinoma of the thyroid gland, *Surg. Gynec. and Obst.*, 89:349, Aug. 1949.
5. Crile, G., Jr., and Dempsey, W. S.: Indications for removal of non-toxic nodular goitres, *J.A.M.A.*, 139:1247, April 30, 1949.
6. Crile, G., Jr.: Papillary carcinoma of the thyroid and lateral cervical region; so-called "lateral aberrant thyroid," *Surg. Gynec. and Obst.*, 85:757, Dec. 1947.
7. Dargent, M.: Indications et résultats du traitement chirurgical du cancer thyroïdien, *J. Chir. Par.*, 58:28, Jan. 1941.
8. Frazell, E. L., Foote, F. W.: The natural history of thyroid cancer, *J. of Clin. Endocrin.*, 9:1023, Dec. 1949.
9. Friedell, M. T.: Hyperthyroidism and adenocarcinoma of the thyroid gland, *Arch. Surg.*, 43:386, Sept. 1941.
10. Goetsch, E.: Incipient carcinoma occurring in exophthalmic goitre and originating in adenoma, *Tr. Am. Assoc. Study of Goitre*, 1940, pg. 191.
11. Graham, A.: Malignant epithelial tumors of the thyroid, *Surg. Gynec. and Obst.*, 39:781, Oct. 1924.
12. Graham, A.: Malignant tumors of the thyroid-epithelial types, *Ann. Surg.*, 82:30, July 1925.
13. Hinton, J. W., and Lord, J. W., Jr.: Is surgery indicated in all cases of nodular goitre, toxic and non-toxic?, *J.A.M.A.*, 129:605, October 27, 1945.
14. Horn, R. C., Jr., et al.: Carcinoma of the thyroid, *Ann. Surg.*, 126:140, Aug. 1947.
15. Jaffe, R. H.: Variation of weight of thyroid gland and frequency of its abnormal enlargement in region of Chicago, *Arch. Path.*, 10:887, Dec. 1930.

TABLE 4.—Thyroid Cancer Arising in Adenoma—Studies of 16 Patients

Sex	Solitary or Multiple	Diag. Made	Histology	Treatment	Neck Node Metastases	Results*
F	S	Surgically ?Clinically	Papillary adenocarcinoma	Partial thyroidectomy, x-ray, $I^{131}$	—	AWD 2 yr.
F	S	Surgically	Carcinoma	Subtotal thyroidectomy, x-ray	—	DOD 2½ yr.
F	S	Surgically	Papillary adenocarcinoma	Subtotal thyroidectomy, right and left	—	NED 1 yr.
M	S	Surgically	Papillary adenocarcinoma	Subtotal thyroidectomy, right and left	—	NED 1 yr.
F	S	Surgically	Adenocarcinoma	Right lobectomy	—	NED 4 yr.
F	S	Surgically	Adenocarcinoma	Left lobectomy	—	NED 3 yr. then DOC.
F	S	Surgically ?Clinically	Malignant adenoma (Carcinoma)	Subtotal thyroidectomy	—	NED 9 yr.
F	S	Surgically	Malignant adenoma (Carcinoma)	Right lobectomy, plus attached node	+	NED 3½ yr.
F	S	Surgically	Papillary adenocarcinoma	Right lobectomy, partial left lobectomy	—	NED 3 yr.
F	S	Surgically ?Clinically	Papillary adenocarcinoma	Left lobectomy, subtotal right lobectomy	—	NED 3 mo.
F	S	Surgically	Papillary adenocarcinoma	Left lobectomy, local excision of nodes, lower and upper jugular chain	+	NED 3 yr.
F	S	Surgically	Giant cell carcinoma	Left lobectomy, x-ray	—	DOD 3 mo.
F	M	Surgically	Malignant adenoma (Carcinoma)	Subtotal thyroidectomy, right and left	—	NED 2½ yr.
F	M	Surgically	Papillary carcinoma	Subtotal thyroidectomy, right and left	—	LTO 1 mo.
F	M	Surgically	Papillary cyst adenocarcinoma	Subtotal thyroidectomy, right and left	—	NED 16 yr.
F	M	Surgically	Adenocarcinoma (metastatic struma)	(multiple) Adenomectomy	—	DOD 6 yr. 4 mo.

\* Abbreviations: NED, no evidence of disease; DOD, died of disease; AWD, alive with disease; LTO, lost to observation.

16. Lahey, F. H., Hare, H. F., and Warren, S.: Carcinoma of the thyroid, *Ann. Surg.*, 112:977, Dec. 1940.
17. Lahey, F. H.: Carcinoma of the thyroid, *Am. J. Roentg. and Rad. Therapy*, 46:469, Oct. 1941.
18. McSwain, B., and Diveley, W.: Malignant tumors of the thyroid gland, *Surg.*, 23:525, July 1948.
19. Means, J. H.: *The Thyroid and Its Diseases*, Second Edition, 1948. J. B. Lippincott Co., pg. 453.
20. Outerbridge, R. E.: Benign metastatic goitre, *Ann. Surg.*, 125:282, March 1947.
21. Pemberton, J.: Malignant lesions of the thyroid gland, *Surg. Gynec. and Obst.*, 69:417, Oct. 1939.
22. Rogers, W. F., Jr., Asper, S. P., Jr., and Williams, R. H.: Clinical significance of thyroid adenoma, *New Eng. J. Med.*, 237:569, October 16, 1947.
23. Rouviere, H.: *Anatomie des Lymphatiques de L'Homme*, pg. 439, 1932, Masson et Cie., Editeurs, Paris, France.
24. Schlesinger, M. J., Gargill, S. L., and Saxe, I. H.: Studies in nodular goitre, incidence of thyroid nodules in routine necropsies in non-goitrous regions, *J.A.M.A.*, 110: 1638, May 14, 1938.
25. VanderLaan, W. P.: Occurrence of carcinoma in autopsy material, *New Eng. J. Med.*, 237:221, August 14, 1947.
26. Ward, G. E., Hendrick, J. W., Chambers, R. G.: Carcinoma of the thyroid gland, *Ann. Surg.*, 131:473, April 1950.
27. Ward, R.: Malignant goitre, *Surg.*, 16:783, Nov. 1944.
28. Warren, S.: The classification of tumors of the thyroid, *Am. J. Roentg. and Rad. Therapy*, 46:447, Oct. 1941.
29. Watson, W. L., Pool, J. L.: Cancer of the thyroid, *Surg. Gynec. and Obst.*, 70:1037, June 1940.
30. Wozencraft, P., and Foote, F. W.: Occult carcinomas of the thyroid, *Tr. of the Am. Assoc. Study of Goitre*, 1948, pg. 150.
31. Personal communications.

## The Collagen Diseases

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### SUMMARY

*The collagen diseases have in common certain relatively specific alterations in the tissues that are derived from the mesenchyme.*

*In reviewing the development of this concept, the nature and the pathogenesis of these changes and the blocking effect of cortisone and ACTH are discussed.*

*The term "diseases of the collagen system" includes a number of clinical states within a broad spectrum of variation in the basic alterations of collagenous and vascular tissues. In rheumatoid arthritis the modifications are chiefly in the somatic connective tissue; in periarteritis nodosa the blood vessel involvement is preeminent; dermatomyositis and disseminated lupus erythematosus present more intermediate mixtures of these changes.*

THE principal site of the morphologic changes of the collagen diseases is in the connective tissues widespread throughout the body. The cells of this tissue, derived from primitive fibroblasts, have long had a recognized position in the understanding of certain pathologic processes, such as repair. The intercellular substance is made up of fibers embedded in a homogeneous matrix, or ground substance. The structural and mechanical functions of connective tissue are performed particularly by its collagenous, elastic, and reticulum fibers. This fiber component justifies the name of the tissue, for it connects other structures; serves as the framework for the parenchymatous cells; and, frequently, as in the heart valves, provides essential working parts of organs. The ground substance, homogeneous and colloidal in nature, is concerned with the less obvious functions of connective tissue in the transfer of metabolites, and in electrolyte and water balance. As the term "collagen" is the Greek for "glue-forming," it is appropriate as a synonym to designate this tissue. (In a fundamental experiment an animal glue is obtained by the boiling of connective tissue.) Such a chemical term more intimately connotes the metabolic activities of the tissue and its features of permeability.

In its derivation from mesenchyme, collagenous tissue has a close ontogenetic association with reticulum and the reticuloendothelial system, mesothelium and endothelium, smooth muscle, and the dense structural tissues. Aegerter and Long<sup>1</sup> recently emphasized that basic defense activities are shared by these mesenchymal derivatives. Hence, it is under-

standable that the pathological alterations of the collagen system are intimately related to morphologic changes in the ubiquitous branches of the vascular system and in the serous membranes, and to the chemical activities mediated by the reticulo-endothelial system.

Histopathologic alterations peculiar to the intercellular portion of connective tissue were observed as long ago as 1880 by Neumann. The term "fibrinoid degeneration" was applied to an acellular, refractile, homogeneous material change that had the prominent eosinophilic staining reaction of fibrin. In undergoing fibrinoid degeneration, the collagen fibers were noted to be swollen and fragmented and the ground substance increased in amount, acquiring an unusual density and striation. Subsequent observers described this change in various inflammatory and degenerative states. Klinge,<sup>19</sup> in 1933, considered it of primary importance in the tissue modifications of rheumatic fever. Studies of the microscopic features of such diseases as disseminated lupus erythematosus and scleroderma gradually developed the recognition of a basic pattern of diffuse vascular and collagen system alteration.<sup>3</sup>

In 1941, Klemperer and his associates<sup>18</sup> summarized their observations on the widespread fibrinoid formation and swelling of the ground substance of the collagenous tissue in the heart, blood vessels, serous membranes, joint capsules, dispersed connective tissue and skin, as well as the characteristic splenic and renal lesions, in disseminated lupus erythematosus. They expressed the concept of the basic importance of such morphologic alterations of the collagen system, establishing the terms "collagen disease" and "diseases of the collagen system."

Fibrinoid degeneration, vascular necrosis, and fibrosis have been encountered as a common denominator in the histopathologic changes of serum sickness, periarteritis nodosa, disseminated lupus erythematosus, rheumatic fever, rheumatoid arthritis, scleroderma, and dermatomyositis. These diseases are recognized as members of the collagen disease group, representing a spectrum of similar alterations in collagenous tissue in dissimilar degrees and distribution. Unrestricted interpretation of fibrinoid vascular change has led various proponents to include in this group such diseases as glomerulonephritis, malignant hypertension, thromboangiitis obliterans, and the Schönlein-Henoch syndrome.<sup>6</sup> But there has not been general acceptance of such inclusions. Against the natural tendency to give a totally common identity to the collagenous diseases, Klemperer<sup>17</sup> has steadfastly maintained that each disease is a separate entity with its own specific anatomical and clinical definition, even though the changes it causes occur in a common systemic site.

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Yardumian and Kleiner<sup>33</sup> presumed that the blood vessel lesion is antecedent to fibrinoid degeneration, and proposed the term "panarteriolitis" to describe the varied alterations of degenerative, proliferative, and inflammatory nature found in the blood vessels. They interpreted the vascular and collagenous changes in these diseases as representing an "accelerated aging" of these tissues, rather than as a unique process.

The role of allergic reaction as an etiologic factor was originally suggested by clinical considerations and supported by the studies of the German pathologists<sup>8, 20</sup> from 1923 to 1938. Rich,<sup>25</sup> since his observations in 1942 on periarteritis nodosa, serum sickness, and sulfonamide therapy, has ably championed the view that fibrinoid collagenous change and the associated arteriolar reaction are manifestations of hypersensitivity. These alterations have been produced experimentally on a hypersensitivity basis by Rich and Gregory<sup>26</sup> and by subsequent workers up to the present. Similar changes are repeatedly observed in microscopic examination of tissues from subjects with allergic conditions. The author observed pronounced fresh fibrinoid necrosis of arterioles widespread in the various organs in a year-old child who died in an acute state of allergic disease. The increase in eosinophilic leukocytes in the blood which has been observed in association with a number of the collagen diseases lends further support to the belief in allergic sensitivity as a causative factor.

As similar collagen changes can be produced by factors apparently unrelated to hypersensitivity, the specificity of fibrinoid degeneration becomes a paramount question. As originally defined and subsequently interpreted, fibrinoid material is characterized by the morphologic phase of homogeneity with refractility and eosinophilic staining reaction. Its appearance suggests a modification of the colloidal state similar to that of coagulation necrosis. Fibrinoid material has been observed in association with many bacterial infections, in the bed of peptic ulcers, and in the vessels of subjects with experimentally induced hypertension; and it has been produced by simple squeezing of the skin. It cannot be assumed to be a specific or pathognomonic manifestation of the hypersensitive state as that state is ordinarily understood.

Significant advances have been made in elucidating the physical and chemical nature of collagen, and therein lies the hope of ultimately understanding its pathological alterations. The electron microscope has revealed essential differences in its nodal structure.<sup>7</sup> The ground substance is a gel composed of acid mucopolysaccharides like hyaluronic acid. Such compounds are highly viscous, and their state of phase and water content are sensitive to pH change due to their high polymerization. Hyaluronidase reduces their viscosity. It appears that fibrinoid material is formed by precipitation of the acid mucopolysaccharides of the ground substance, and that the precipitation possibly is caused by an alkaline protein derived either from necrotic tissue

or from reaction with a damaging reagent. Fibrinoid material can be identified by its positive reaction with the Schiff reagent after periodic acid oxidation.<sup>2</sup>

The formation of plasma globulin, especially the immune globulins of the gamma type, is attributed to the reticuloendothelium. If collagenous alterations are interpreted as a part of a defense reaction of the mesenchyme in which reticulum participates, there is a logical correlation with the hyperglobulinemia frequently encountered in collagen diseases. In explaining the emphasized reaction of the connective tissue cells, Aegerter and Long<sup>1</sup> postulated the formation of antibodies which are retained in the cytoplasm of the cellular elements and which participate in an intracellular hypersensitivity reaction. This appears to be substantiated by the work of Warren and Dixon<sup>32</sup> in which radioactively labeled antigen was located in the edematous peribronchial tissues in experimentally induced anaphylactic shock.

Changes in the collagenous subcutaneous tissue in various endocrine states, such as hypothyroidism, have long been recognized. Selye<sup>27</sup> demonstrated experimentally the production of mucinous edema by estradiol. An extension of the same investigator's concept of adaptation exposes the role of cortical adrenal activity in the body defense reaction.<sup>28</sup> In 1948, it was found that ACTH caused a drop in the gamma globulin.<sup>4</sup> The epochal work of Hench, Kendall, and co-workers<sup>12</sup> has shown the astounding temporary efficacy of ACTH and cortisone (Kendall compound E) in rheumatoid arthritis, rheumatic fever, and other members of the collagen disease group. Any excitant of adrenal cortical activity, such as epinephrine or insulin, appears to have a similar although lesser effect. Both ACTH and cortisone regularly depress the gamma globulins,<sup>13</sup> reduce the eosinophilic leukocytes of the blood,<sup>31</sup> and inhibit the proliferation of fibroblasts. The healing of wounds<sup>23</sup> and fractures<sup>24</sup> is powerfully inhibited by these substances. Adrenal steroids have an inhibitory effect on the "spreading factor" of the skin. The hyperadrenal state induced directly by cortisone, or indirectly by ACTH, appears to block the usual mesenchymal tissue reactions, whether expressed as wound healing or the development of hypersensitivity. Perhaps this is accomplished in part by alterations in tissue permeability.<sup>5</sup> The voluminous work being published currently on the activity of ACTH continually exposes new, beneficial effects of ACTH in the collagen diseases<sup>22</sup> and constitutes one of the most brilliant chapters of American medicine.

In explaining the individual differences in the separate diseases which are associated as the collagen group, it has been proposed that these differences are accounted for by the variations in the provocative antigenic agents, the hormone control, and the constitutional predisposition which affects the mesenchymal defense unit.<sup>1</sup> The multitude of similarities and the specific differences of the collagenous diseases have been summarized in the recent publications of Stewart<sup>30</sup> and Kampmeier.<sup>14</sup>



Procedures identifying the individual diseases are becoming more numerous. Periarteritis nodosa is being diagnosed frequently by biopsy.<sup>16</sup> In active rheumatoid arthritis, intramuscular aggregates composed of a central nodule of lymphocytes surrounded by plasma cells have been observed regularly.<sup>21, 29</sup> A particular cell, the "L.E." cell, has been found in the blood and bone marrow in disseminated lupus erythematosus.<sup>10</sup> This cell is an expanded polynuclear leukocyte containing vacuoles of nuclear chromatin in various stages of digestion. That the agent responsible for this lytic-phagocytic phenomenon resides in the globulin of the blood is demonstrated by the regular appearance of "L.E." cells in large numbers in normal bone marrow to which serum from a person who has disseminated lupus erythematosus is added.<sup>11</sup>

These recent advances appear to support and expand the basic concept that a similar pathologic process of mesenchymal tissue finds expression in the various collagen diseases. As a basic tissue reaction mechanism, it holds a position analogous to that of suppurative inflammation. Throughout the varied etiologic features of the individual diseases, there is the recurring suggestion of hypersensitivity, and modification by constitutional and endocrinous factors. The control exerted upon mesenchymal tissue reaction, either indirectly by ACTH, or directly by cortisone, aids in the understanding of the functional activity of the tissue and opens new vistas of therapeutic possibilities.

## REFERENCES

1. Aegerter, E., and Long, J. H.: The collagen diseases, *Am. J. M. Sc.*, 218:324-337, Sept. 1949.
2. Altshuler, C. H., and Angevine, D. M.: Histochemical studies on the pathogenesis of fibrinoid, *Am. J. Path.*, 25:1061-1077, Sept. 1949.
3. Banks, B. M.: Is there a common denominator in scleroderma, dermatomyositis, disseminated lupus erythematosus, Libman-Sacks syndrome and polyarteritis nodosa?, *New England J. Med.*, 225:433-444, Sept. 18, 1941.
4. Forsham, P. H., Thorn, G. W., Prunty, F. T. G., and Hills, A. G.: Clinical studies with pituitary adrenocorticotropin, *J. Clin. Endocrinol.*, 8:15-66, Jan. 1948.
5. Freyberg, R. H.: Effects of Cortisone and ACTH in rheumatoid arthritis, *Bull. New York Acad. Med.*, 26:206-211, April 1950.
6. Gairdner, D.: Schönlein-Henoch syndrome (anaphylactoid purpura), *Quart. J. Med.*, 17:95-122, April 1948.
7. Gale, J. C.: Electron microscopic studies of collagen from normal and diseased tissues, *Am. Assn. Path. and Bact.*, 47th Ann. Meet., April 14, 1950.
8. Gerlach, W.: Studien über hyperergische Entzündung, *Virchows Arch. f. path. Anat., Berl.*, 247:294-361, 1923.
9. Godlowski, Z. Z.: Stimulation of the suprarenal glands in the treatment of rheumatoid arthritis: preliminary report, *Ann. Rheumat. Dis.*, 8:285-289, Dec. 1949.
10. Hargraves, M. M., Richmond, H., and Morton, R.: Presentation of two bone marrow elements; "tart" cell and "L.E." cell, *Proc. Staff Meet., Mayo Clin.*, 23:25-28, Jan. 21, 1948.
11. Haserick, J. R.: Blood factor in acute disseminated lupus erythematosus, *Am. Assn. Path. and Bact.*, 47th Ann. Meet., April 14, 1950.
12. Hench, P. S., Kendall, E. C., Slocumb, C. H., and Polley, H. F.: The effect of a hormone of the adrenal cortex (17-hydroxy-11-dehydrocorticosterone: compound E) and of pituitary adrenocorticotrophic hormone on rheumatoid arthritis: preliminary report, *Proc. Staff Meet., Mayo Clin.*, 24:181-197, April 13, 1949.
13. Hench, P. S., Slocumb, C. H., Barnes, A. R., Smith, H. L., Polley, H. F., and Kendall, E. C.: The effects of the adrenal cortical hormone 17-hydroxy-11-dehydrocorticosterone (Compound E) on the acute phase of rheumatic fever: preliminary report, *Proc. Staff Meet., Mayo Clin.*, 24:277-297, May 25, 1949.
14. Kampmeier, R. H.: Vascular diseases due to hypersensitivity: so-called diffuse collagen disease, *Am. Pract.*, 1:113-121, Feb. 1950.
15. Keil, H.: Conception of lupus erythematosus and its morphologic variants, with particular reference to "systemic" lupus erythematosus, *Arch. Dermat. & Syph.*, 36:729-757, Oct. 1937.
16. King, Boyd G.: The clinical diagnosis of periarteritis nodosa: report of four cases, *Ann. Int. Med.*, 32:466-476, March 1950.
17. Klemperer, P.: Diseases of collagen system, *Bull. New York Acad. Med.*, 23:581-588, Oct. 1947.
18. Klemperer, P., Pollack, A. D., and Baehr, G.: Pathology of disseminated lupus erythematosus, *Arch. Path.*, 32:569-631, Oct. 1941.
19. Klinge, F.: Der Rheumatismus; pathologisch-anatomische und experimentell-pathologische Tatsachen und ihre Auswertung für das ärztliche Rheumaproblem, *Ergebn. d. allg. Path. u. path. Anat.*, 27:1-351, 1933.
20. Masugi, M., and Yä, S.: Die diffuse Sklerodermie und ihre Gefäßveränderung, *Virchows Arch. f. path. Anat.*, 302:39-62, 1938.
21. Naide, M., Sayen, A., and Comroe, B. I.: Characteristic vascular pattern in patients with rheumatoid arthritis, *Arch. Int. Med.*, 76:139-142, Sept. 1945.
22. Proc. First Clinical ACTH Conf., Oct. 21, 1949, Blakiston Co., Philadelphia, 1950.
23. Ragan, C., Grokoest, A. W., and Boots, R. H.: Effect of adrenocorticotrophic hormone on rheumatoid arthritis, *Am. J. Med.*, 7:741-750, Dec. 1949.
24. Ragan, C., Howes, E. L., Plotz, C. M., Meyer, K., Blunt, J. W., and Lattes, R.: The effect of ACTH and Cortisone on connective tissue, *Bull. New York Acad. Med.*, 26:251-254, April 1950.
25. Rich, A. R.: Role of hypersensitivity in periarteritis nodosa as indicated by seven cases developing during serum sickness and sulfonamide therapy, *Bull. Johns Hopkins Hosp.*, 71:123-140, Sept. 1942.
26. Rich, A. R., and Gregory, J. E.: Experimental demonstration that periarteritis nodosa is a manifestation of hypersensitivity, *Bull. Johns Hopkins Hosp.*, 72:65-88, Feb. 1943.
27. Selye, H.: Effect of folliculoid hormones on abnormal skin; further observations of effect of estradiol on skin of mice of rhino, hairless and naked strains, *Arch. Dermat. & Syph.*, 50:261-263, Oct. 1944.
28. Selye, H., and Pentz, E. I.: Pathogenetical correlations between periarteritis nodosa, renal hypertension and rheumatic lesions, *Canad. M. A. J.*, 49:264-272, Oct. 1943.
29. Steiner, G., and Chason, J. L.: Differential diagnosis of rheumatoid arthritis by biopsy of muscle, *Am. J. Clin. Path.*, 18:931-939, Dec. 1948.
30. Stewart, L. L.: The collagen diseases, *J. Michigan M. Soc.*, 48:344-346, March 1949.
31. Thorn, G. W., Forsham, P. H., Prunty, F. T. G., and Hills, A. G.: A test for adrenal cortical insufficiency: the response to pituitary adrenocorticotrophic hormone, *J.A.M.A.*, 137:1005-1009, July 17, 1948.
32. Warren, S., and Dixon, F. J.: Antigen tracer studies and histologic observations in anaphylactic shock in the guinea pig, *Am. J. M. Sc.*, 216:136-145, Aug. 1948.
33. Yardumian, K., and Kleinerman, J.: Pathogenesis of so-called diffuse vascular or collagen disease, *Arch. Int. Med.*, 83:1-26, Jan. 1949.

## Management of Cancer of the Nasal Cavity and Paranasal Sinuses

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### SUMMARY

*Cancer involving the antrum can be cured in a greater percentage of cases if the lesions are detected earlier, specifically diagnosed histologically, and radically managed at the time of the initial treatment. The procedure of choice is, first, surgical removal (with a scalpel) of as much of the tumor as is possible without risk of operative death, then limited but specific cancerocidal radiation as indicated by operative findings or regular post-operative observation. The period of convalescence will be less distressing and shorter with this procedure than with others; and, in those cases in which cure is not effected, palliation will be more satisfactory. The cured patients are cosmetically acceptable without functional disability except for unilateral loss of vision in cases in which exenteration of the orbit is necessary.*

CANCER of the nasal cavity and paranasal sinuses makes up about 0.2 per cent of all malignant tumors. Eighty per cent of these lesions arise in the maxillary antrum. However, this is usually difficult to prove because by the time the patient is first observed the extent of the involvement masks the point of origin in a majority of the cases. This is of only academic importance, as the management of these primary lesions is dependent upon their extent rather than the site of origin. On the other hand, the fact that definitive treatment often is not begun until the growth is extensive makes for end-results which are much poorer than they need be. In this regard it is particularly noteworthy that in the great majority of cases death is caused by local complications and sequelae rather than by distant metastases. In addition, the increased morbidity occasioned by delay results in excruciating local pain, sepsis, and bleeding and foul-smelling ulcerated lesions which make social outcasts of the sufferers. According to reports of observations at autopsy, distant metastasis occurs in not over 25 per cent of cases; in the other .75 per cent, presumably, death is caused by the local effects of the lesion.

### REPORTED END-RESULTS

A contributing factor in the deaths from such local lesions is omitting to apply the best treatment,

adequately, when the patient is first observed. This omission is owing either to undue pessimism or to lack of knowledge regarding the efficacy of the therapeutic measures available. Too often, this frame of mind is influenced by publications of statistical end-results, based on a selected group of cases, "proving" the effectiveness of a special form of treatment or indicating that trying to cure the patients by any form of therapy is hopeless. For example, Tod<sup>3</sup> in 1948 analyzed a group of 100 patients, treated by the insertion of radium within the substance of the antral cancer, with five-year arrest in 26 per cent of cases. It was claimed, therefore, that this was the method of choice in the treatment of these lesions. Yet, in a critical analysis of the body of the article in which this conclusion was reached, it was noted that for the entire series of 222 patients reported upon by Tod, who were treated by all methods, the five-year salvage rate was 25 per cent. Windeyer<sup>4</sup> of Middlesex Hospital, London, reported in 1948 that in cases in which radium alone was used, the five-year arrest rate was 18.8 per cent. In a later group treated by a combination of primary external x-irradiation, followed by limited electrosurgical excision of the palate, for both drainage and removal of residual necrotic tissue or tumor, together with subsequent intracavitary insertion of radium (if indicated), the five-year arrest rate was 25 per cent. The treatment period covered four to six months with continued discharge of necrotic material and sequestration of the thermal-coagulated and radiated tissues for at least another three to six months. The patients had pain, foul-smelling discharge and hemorrhages and were greatly dependent on professional assistance during this long period of treatment. Del Regato<sup>2</sup> reported a series of ten patients treated by x-irradiation alone with 40 per cent five-year salvage. Berven,<sup>1</sup> of Stockholm, reported only 6 per cent five-year salvage in a group of 222 patients similarly treated. As both investigators are competent radiologists, it may be assumed that the pronounced disparity in the reported results is ascribable to the manner in which each selected cases for treatment, and to the manner of subsequent analyses. Wille<sup>5</sup> of the Norwegian Radium Hospital of Oslo reported on 220 cases. The highest five-year salvage rate, 18.1 per cent, was in a group of patients treated by radical operation and intensive postoperative irradiation. The poorest result was five-year arrest of the lesion in 6.3 per cent of 95 patients treated by radiation alone.

In further study of the reports mentioned it was observed that the best results were attained in cases

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in which surgical treatment of one kind or another was used, irrespective of the role played by radiation. In all instances, operation was resorted to for drainage of the antrum because of the trapped products of tumor necrosis, radiation destruction, or infection. In most cases adequate post-radiation operation resulted in the extirpation of as much tissue as might have been removed if operation had been selected in the first place as the primary therapeutic agent. Yet, because of the initial intensive radiation, necrotic bony walls and sloughing, foul, cavity linings remained after operation. The patients were subject to frequent, often serious, hemorrhages and needed prolonged and expensive nursing care. Since extensive operation is usually done sooner or later, it would seem reasonable to presume that definitive application of radical operation at the outset should be the treatment of choice. This would permit the surgeon to follow the unaltered local spread of the tumor and to specifically determine the areas from which he probably failed to remove all of the growth, as at the cribriform plate, pterygoid muscles, infratemporal region, orbital roof and sphenoid sinus. He could then direct the radiotherapist to these special areas and likewise present him with an open, exposed surface for treatment in place of the previously hidden bone-enclosed cavity. More efficient radiation with minimal complications can thus be administered, cutting down on the degree of morbidity and shortening the treatment period. Patients so treated are more comfortable and the primary combined treatment period is only one and a half to three months, as against six to nine months with primary radiation methods.

#### USE OF CAUTERY

The use of the cautery as a surgical tool is shunned for two very good reasons. In the first place, the cautery destroys the outlines of the tumor so that the exact extent of the lesion cannot be visualized. Hence the surgeon cannot intelligently perform an operation which will only encompass the lesion itself; nor is he in a position to advise the radiologist as to where, if at all, he failed to completely eradicate the tumor. Cooked tumor tissue and cooked normal tissues look alike. In the limited surgical field in such operations the surgeon is never sure, in advance, as to how much tissue he will have to remove. He may begin with a limited cheek flap and then decide to remove the maxilla. In following the tumor, he may find it necessary to extend the incision below the lower lid of the eye or around both lids to exenterate the orbit. If the tissues have been altered by previous treatment the surgeon cannot determine whether the posterior ethmoidal involvement represents tumor invasion or inflammatory edema, hence cannot decide whether or not the orbit needs be exenterated because of retro-ocular invasion. He has to determine whether the tumor is invading the infratemporal space or the pterygoid muscles, because in the former instance he would remove the malar bone, in the latter, the mandible. He may wish to decide whether or not the exposed

surfaces are sufficiently free of tumor to permit the application of a split graft to the denuded area, thus materially improving the result of operation and reducing the period of convalescence. The use of the cautery prevents such evaluation and forces the surgeon to remove a predetermined mass of tissue which may prove to be too little or unnecessarily mutilating. A second contraindication for the use of the cautery is the destruction with secondary sloughing and sequestration of the remaining tissues, which results in an unnecessarily severe and prolonged period of convalescence. For the same reason, the change in tissue structure caused by cautery may mask early recurrences. About the only virtue of cautery is the hemostatic effect, but hemostasis can be more satisfactorily obtained by arterial ligation.

#### HISTOPATHOLOGIC FACTORS

Successful management of cancer involving the paranasal sinuses and nasal cavity depends upon early detection, histopathologic determinations, the extent of the disease, and the proper application of the indicated procedures. Histopathologic factors will determine the choice of therapy. If the lesion is lymphosarcoma, plasmacytoma, highly undifferentiated carcinoma, or so-called "reserve cell" carcinoma, small doses of x-ray will often result in at least temporary regression of the tumor with a minimum of deformity or complications. Malignant melanoma and osteogenic sarcoma, on the other hand, are strictly surgical problems. In about 99 per cent of cases the lesion is epithelial carcinoma—adenocarcinoma in 9 per cent of cases and epidermoid or squamous carcinoma in 90 per cent. Adenocarcinoma originates in the accessory salivary gland in most instances. Postoperative radiation probably will not be used in cases of adenocarcinoma, first because the lesion is relatively radioresistant and secondly because it is usually encapsulated and can more certainly be completely removed. Epidermoid or squamous carcinoma is infiltrative, and most of the failures in treatment and the greatest controversy as to management are related to lesions of this type. It is for tumors of this classification that primary radical operation (with postoperative radiation if indicated for residual disease) is recommended.

#### RESULTS OF TREATMENT

Fifty-one patients were treated for cancer of the nasal cavity or paranasal sinuses in the period 1944-50. In eight cases the growth was confined to the nasal cavity. Although the elapsed time is too short for end-result analysis, this presentation reveals the improved immediate results that can be expected from the application of radical operation as the primary procedure in the treatment of these cases.

In 23 of 43 cases of antral cancer the lesion was so advanced that exenteration of the orbit as well as excision of the maxilla was necessary. In one case bilateral excision of the maxilla was carried out, and in three the vertical ramus of the mandible was excised. There were three postoperative deaths, one

caused by cerebral anoxia because of plugging of the endotracheal tube, another by meningitis following removal of the tumor invading the cribriform plate, and a third by coronary thrombosis on the seventh postoperative day. Three patients died of other causes, apparently free of cancer. Seventeen died of cancer after survival of six months to three years postoperatively. Three were alive but had cancer at the time of this report.

Seventeen patients were still alive, free of cancer, six months to four years after treatment. One of the three-year survivors had had primary radiation and two limited surgical procedures in a period of six months before he was first observed by the author. Combined maxillary excision and orbit exenteration then was carried out and, seven months later, a radical dissection for metastatic cervical node cancer. At last report the patient has been gainfully employed and meeting the public without discomfort or disease for two years.

Although 23 of the 43 patients were considered incurable and beyond hope because of the orbital involvement, eight of them were still alive and free of disease after periods ranging from ten months up to almost four years. The author knows of no other combination of treatment which could have been offered these patients with cure as an objective.

Because of tumor invasion of the base of the skull, especially in the region of the cribriform plate, there was leakage of cerebrospinal fluid during operation in four cases. One of the patients died postoperatively, and the other three lived only six to eleven months. In nine cases there was extension of the lesion into the pterygoid muscles. In three of them the vertical ramus of the mandible was removed. Seven of the nine patients had postoperative

radiation, and four were still alive without evidence of disease at the time of this report.

Metastasis to regional nodes was observed in only four of the 43 cases of antral cancer. One of the four patients was alive without evidence of recurrence two years and ten months after radical neck dissection. One patient died of distant metastases to the liver and lung following bilateral cervical node involvement.

#### COSMETIC CONSIDERATIONS

An important consideration, of course, is what effect the disfigurement of operation will have upon the patient in social and business relations. A patient who has had exenteration of the orbit need but wear an ordinary eye-patch to make himself quite presentable, while use of a simple dental prosthesis will overcome a palatal defect so that eating and speech are normal. At the same time, the palatal defect can be looked upon as a distinct advantage in that it permits easy, accurate and frequent observation of the involved area so that early detection of controllable recurrence is possible.

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#### REFERENCES

1. Berven, E.: Carcinoma of the antrum; discussion, Proc., 30th Annual Meeting, Amer. Rad. Soc., Chicago, June 1948.
2. del Regato, J. A.: Roentgentherapy in epitheliomas of the maxillary sinus, Surg. Gynec. and Obst., 65:657-665, Nov. 1937.
3. Tod, M. C.: The treatment of carcinoma of the maxillary antrum by radium, Brit. Journal Radiology, 21:270-275, June 1948.
4. Windeyer, B. W.: Carcinoma of the antrum, Proc., 30th Annual Meeting, Amer. Rad. Soc., Chicago, June 1948.
5. Wille, C.: Malignant tumors in the nose and its accessory nasal sinuses, Acta Oto-laryng. (Suppl. 65): 1-58, 1947.



# Hysterical Abdominal Distention Simulating Acute Intestinal Obstruction

## With Report of a Case

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### SUMMARY

*In hysterical abdominal distention the symptoms may so closely simulate those of obstruction of the bowel that needless laparotomy is carried out.*

*Clues that indicate hysterical distention rather than organic cause are: (1) History of vomiting but without dehydration; (2) complaint of severe pain although temperature, pulse and the number of leukocytes in the blood all are normal; (3) normal tympanic quality of the abdomen; (4) distention out of proportion to the amount of gas observed in x-ray examination; (5) pronounced lordosis caused by thrusting the abdomen forward; and (6) remission of distention when the patient is under general anesthesia.*

*It must be remembered, however, that even when there is strong suspicion of hysterical cause, distention may actually be due to obstruction. In the case herein reported, obstructive adhesion finally did occur after the patient had had numerous exploratory operations in which the viscera were observed to be normal.*

OF the many causes of acute intestinal obstruction, postoperative adhesion is one of the most common. A patient who complains of nausea, vomiting, abdominal pain and obstipation, and who has a distended abdomen with an operative scar, must be assumed to have intestinal obstruction until this is disproved. Delay in operating if obstruction is present may be disastrous. On the other hand, even the most experienced surgeons have occasionally been misled into operating because of symptoms of severe obstruction, only to find the bowel normal and nothing within the abdomen to account for the preoperative appearance.

Hysterical abdominal distention has been known for over a hundred years. The so-called "phantom tumors" and pseudopregnancies are a manifestation of this entity. Alvarez<sup>1</sup> in 1949 published the most recent report on the subject and the reader is referred to his paper for a complete review of the

literature and an analysis of the various factors involved in the mechanism of the distention. In that report Alvarez stated: "The pronounced bloating is not due to any excess of gas in the digestive tract but apparently to a contraction of the muscles lining the back and upper end of the abdominal cavity and a relaxation of the muscles of the anterior abdominal wall. These changes, associated often with the assumption of an extremely lordotic posture, tend to throw the abdominal contents forward and somewhat downward toward the pelvis." In support of the hysterical nature of these factors is the observation by many investigators, as far back as 1855,<sup>6,8</sup> that the distention disappears suddenly without the passage of gas when the patient is given a general anesthetic.

Alvarez reported 92 cases of varying severity, but stated that cases in which symptoms resemble those of true intestinal obstruction are rare. Goldschmidt,<sup>5</sup> Christianson,<sup>4</sup> Barga,<sup>3</sup> and Purves-Stewart,<sup>7</sup> among others, have reported cases simulating obstruction. Barga's first report in 1931 included five cases at the Mayo Clinic, in one of which there was fecal vomiting for several days; exploration revealed no evidence of obstruction in any of the five cases.

### DIAGNOSTIC AIDS

There are several valuable diagnostic clues in distinguishing between hysterical distention and true intestinal obstruction, but in some cases the differentiation may be so difficult that the surgeon is forced to operate in spite of suspicion of hysteria. These clues are manifested by a series of discrepancies. Although patients with hysterical distention give a history of vomiting, perhaps of several days' duration, they are not dehydrated. They may cry and complain so bitterly of abdominal pain and tenderness that the examiner even suspects strangulation and localized peritonitis, yet have normal temperature and pulse and no increase in leukocytes in the blood. In such cases the distended abdomen is not abnormally tympanitic and, most noteworthy of all, the distention is out of proportion to the amount of gas observed in roentgen examination. Because of the tendency for the abdominal contents to be pushed forward and downward by the patient's abnormal posture, most of the gas present may be low in the abdomen or pelvis. The examiner should look for the lumbar lordosis which in some cases is so pronounced that a hand can be easily passed between the bed and the patient's back. A

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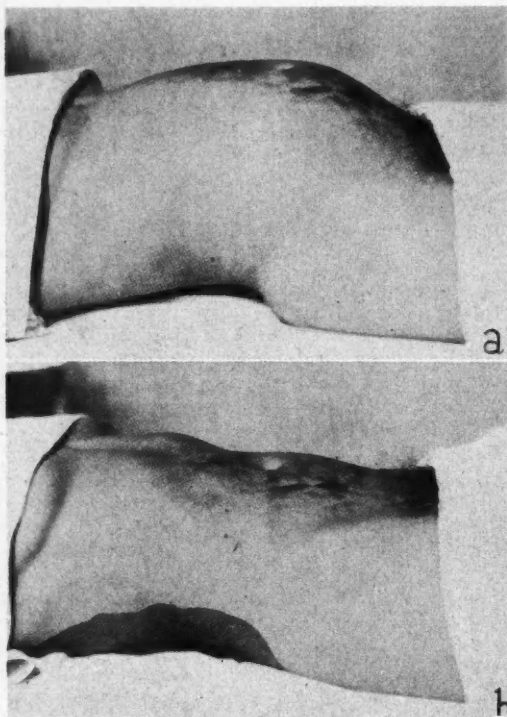


Figure 1.—Photograph of a patient of Bergen showing: A, before, and B, after induction of splanchnic anesthesia, injection of physiologic saline, injection of thionembatal, and other manipulations which distracted the patient's attention. (From Bergen, Adson, Lundy and Dixon in the *American Journal of Digestive Diseases*.) The appearance and response of this patient is almost identical to that in the case herein reported.

simple test, reported by Bergen,<sup>3</sup> is to turn the patient on his side and flex him into jack-knife position, overcoming the lordosis, whereupon the apparent distention will usually subside or disappear entirely. Most conclusive of all is the rapid disappearance of the distention, without the passage of gas, upon administration of a general anesthetic. The distention may recur with return to consciousness. Bergen<sup>3</sup> reported relief of distention by a bilateral splanchnic block. He used procaine on one occasion and normal saline on another in the same patient. (Figure 1.) It is important to remember, however, that some patients with hysterical distention may actually have an abnormal amount of gas from some other cause, such as air swallowing; and, even more important, that in some cases true obstruction may be present, particularly if previous abdominal exploration has been carried out.

#### TREATMENT

Once the diagnosis is established, treatment is largely psychiatric. Operation is definitely contraindicated. Laparotomy, sympathectomy, splanchnicectomy, phrenicotomy, resection of presacral nerves, ileocolostomy and other procedures have been tried and have failed. Gastrointestinal suction and enemas during an attack are of no avail. Lumbar sympathetic

and splanchnic nerve blocks may have a psychological value. Drugs such as Pitressin,<sup>®</sup> Prostigmine<sup>®</sup> and Etamon<sup>®</sup> have been of no help. Alvarez,<sup>2</sup> pessimistic about treatment and prognosis, said that most patients with hysterical abdominal distention are incurable because of hysterical temperament, poor insight and lack of desire to cooperate in psychiatric treatment. Many become addicted to narcotics.

#### CASE REPORT

This report is compiled from letters and personal conversations with most of the physicians who have attended the patient, and from personal observation in 1947 and again in 1949. In view of the fact that the patient has been hospitalized some 20 times and operated upon 12 times with an almost identical episode of pseudo-bowel obstructions on each occasion, no attempt is made to describe the details of each instance; they are summarized in Table 1. The following describes the author's observations.

The patient, a woman 23 years of age at the time of this report, had an appendectomy at the age of 10. In 1944, at the age of 17, a viable male child was delivered by cesarean section. This was followed by three laparotomies in 1945 and a fourth in January of 1946 for what the patient described as bowel obstruction. (These have not been verified.) On April 24, 1946, operation was done in Redding, California, because of progressive abdominal distention, nausea and vomiting. No abnormality was noted. The symptoms remained unchanged postoperatively. On May 11, 1946, exploration was carried out at Stanford University Hospital in San Francisco because of symptoms of intestinal obstruction. No obstruction was observed. The patient returned to the hospital two weeks after discharge with similar symptoms but on this entry the functional nature of the illness was more evident and the patient was treated conservatively. On both entries at Stanford University Hospital the patient complained bitterly of pain and the abdomen appeared to be greatly distended, but there was no significant elevation of temperature or of the number of leukocytes in the blood, and in roentgenograms of the abdomen no significant increase in gas or dilatation of the bowel were observed. In July and August, 1946, laparotomy was done at Fitzsimmons General Hospital. The preoperative diagnosis in each instance was intestinal obstruction. It was noted on these occasions that the abdominal distention disappeared when the patient was anesthetized at the time of operation. Psychiatric interviews during convalescence were of no avail. The patient was hospitalized for similar complaints in January 1947 in Redding, but left the hospital before treatment could be evaluated.

On October 29, 1947, the patient entered San Francisco City and County Hospital with complaint of abdominal cramps and increasing distention for three days. The abdomen was greatly distended and there was generalized tenderness. On this occasion, peristalsis was hyperactive. There was no fever and leukocytes in the blood numbered 10,200 per cu. mm. with 82 per cent neutrophils. A roentgenogram showed only a small amount of gas in the small bowel and gas in the sigmoid colon but no evidence of obstruction. Suction was started with a mercury-weighted tube. Six hours later, although the abdomen still appeared to be distended, in a second roentgenogram (Figure 2) no gas was observed in the small bowel, and there was more gas in the colon but no distention. Leukocytes in the blood numbered 8,900 per cu. mm. and the temperature was 99° F. The patient complained of severe abdominal pain. The diagnosis of volvulus with a closed-loop obstruction was considered and operation was advised but the patient at first refused to consent on the grounds that nothing had been found in previous laparotomies. The next day, however, at the insistence of

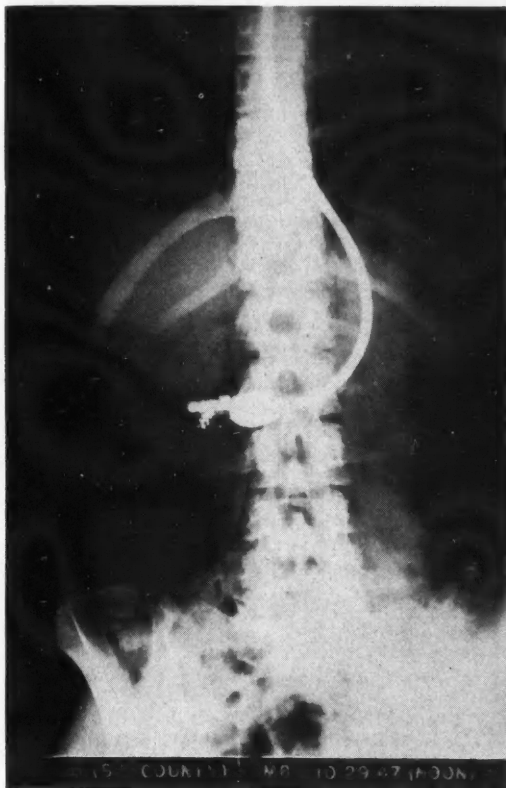


Figure 2.—Roentgenogram taken at San Francisco Hospital at the height of the patient's pseudodistention, revealing no significant gas in the bowel.

the surgical staff, she consented to operation. With the patient under spinal anesthesia, laparotomy was carried out. There were remarkably few adhesions and no evidence of dilatation or obstruction of either small or large bowel. The other abdominal viscera were likewise normal. The patient remained in the hospital for five weeks. During most of that time the abdomen remained distended and the patient complained so bitterly of abdominal pain that on one occasion laparotomy was again considered; but in view of the lack of roentgenographic evidence of gas it was deferred. In repeated roentgenograms following barium by mouth and barium enema no evidence of obstruction was observed. No abnormality was observed in proctoscopic examination. A neurogenic basis was suspected, but results of neurological examination and of spinal fluid analysis were normal. Tetraethylammonium chloride was given to block sympathetic control of the colon, but without benefit. Spinal anesthesia, using 100 mg. of procaine crystals in 2 cc. of spinal fluid injected between L<sub>2</sub> and L<sub>3</sub>, produced anesthesia to the nipple line but had no effect on the abdominal distention. The patient frequently had over-emotional reactions such as sobbing and crying spells and sudden changes of mood. When it was finally noted that there was pronounced lumbar lordosis and that in spite of the prolonged period of distention the general condition and the nutritional status of the patient remained very good, psychiatric consultation was obtained. Immediately following the interview, the patient demanded to be released. She dressed and walked out of the hospital, appearing to be in excellent health.

In September 1948 the patient was hospitalized in Redding for one week with the usual pronounced abdominal distention and complaint of pain but with normal pulse and temperature. No abnormality was observed roentgenographically. Operation was not done and the symptoms gradually subsided. Again at Redding in December 1948, true obstruction occurred for the first time. On this occasion, the temperature and pulse did rise and fecal vomiting was noted. No immediately preoperative x-ray film was obtained as laparotomy was done in emergency. A small band crossed the ileum, which appeared to be obstructed with injection of adjacent bowel. Recovery was uneventful. Less than a month later the patient entered Washoe General Hospital in Reno, Nevada, with clinical signs of obstruction but no abnormality observed in a roentgenogram. A mercury-weighted tube was passed to the ileum but the distention did not subside after one week. In x-ray examination with barium enema no obstruction was observed. As the patient did not appear to improve, laparotomy was done. The surgeon noted dilation of the cecum and considered the ascending colon to be incompletely rotated and partially obstructed. A right colectomy and ileotransverse colostomy was done. Postoperatively the suction tube emerged through the anus, conclusively ruling out obstruction, but the distention remained. Another episode in March 1949 required hospitalization in Idaho, but due to the neurotic appearance of the patient and a normal roentgenogram, functional distention was diagnosed. When a request for morphine was refused, the patient anxiously left the hospital. Next hospitalized in Elko, Nevada, in July 1949 the patient was spared exploration when the distention suddenly disappeared as general anesthesia was given on the operating table. The distention was also relieved on two subsequent occasions by intravenous injection of Pentothal® and again by ethyl chloride, but each time suddenly recurred when the patient regained consciousness. At St. Mary's Hospital in San Francisco in August 1949 operation was withheld, despite the usual symptoms, because of a normal roentgenogram. The last known laparotomy was September 28, 1949, at Salt Lake County Hospital. The abdomen was described as "surprisingly clear" with two small adhesions but no obstruction. On discharge the patient went to another local hospital, but when the facts of the previous admission were obtained she was discharged. In November the patient returned to Redding and there requested colostomy, which was refused.

#### COMMENT

The case reported is typical of hysterical abdominal distention closely resembling acute intestinal obstruction. The over-emotional complaint of pain, the apparent abdominal distention out of proportion to the amount of gas observed in roentgenograms, the pronounced lordosis, the absence of systemic signs and of leukocytosis should all be clues to those familiar with this entity. The sudden disappearance of distention with general anesthesia is an extremely helpful diagnostic aid. In the author's own experience with the patient, it was his familiarity with the disastrous outcome of delay in operating in the presence of true obstruction and his lack of familiarity with hysterical distention which made him overlook the proper diagnosis and insist that the patient have another laparotomy. On some occasions the picture was complicated by the appearance of a moderate amount of gas particularly in the large bowel as seen on roentgenograms. This can be accounted for on the basis of air swallowing (the stomach frequently contained air) and by the re-

TABLE 1.—Summary of Hospital Entries and Operations

Date	Hospital	Clinical Diagnosis	X-ray Diagnosis	Operation
1937.....	.....	.....	.....	Appendectomy
1944.....	.....	.....	.....	Cesarean
Jan. 1945.....	.....	Intestinal obstruction	.....	Laparotomy
Aug. 1945.....	.....	Intestinal obstruction	.....	Laparotomy
Oct. 1945.....	.....	Intestinal obstruction	.....	Laparotomy
Jan. 1946.....	.....	Intestinal obstruction	.....	Laparotomy
April 21 to 30, 1946.....	Redding	Intestinal obstruction	No obstruction	No obstruction
May 9 to 25, 1946.....	Stanford	Intestinal obstruction	No obstruction	No obstruction
May 29 to 31, 1946.....	Stanford	Abdominal distention	No obstruction	None
July 14, 1946.....	Fitzsimmons	Intestinal obstruction	No obstruction	No obstruction
Aug. 30, 1946.....	Fitzsimmons	Intestinal obstruction	No obstruction	No obstruction
Jan. 6 to 7, 1947.....	Redding	Abdominal distention	No obstruction	None
Oct. 29 to Dec. 8, 1947.....	S. F. County	Intestinal obstruction	No obstruction	No obstruction
Sept. 2 to 11, 1948.....	Redding	Abdominal distention	No obstruction	None
Dec. 13, 1948, to Jan. 6, 1949.....	Redding	Intestinal obstruction	Early obstruction, no preoperative film	Obstruction
Jan. 22 to March 17, 1949.....	Reno	Intestinal obstruction	No obstruction	No obstruction
March 22 to 24, 1949.....	Idaho	Abdominal distention	No obstruction	None
July 1949.....	Elko	Intestinal obstruction	No obstruction	None
Aug. 23 to 27, 1949.....	St. Mary's	Intestinal obstruction	No obstruction	None
Sept. 27 to Oct. 23, 1949.....	Salt Lake	Intestinal obstruction	No obstruction	No obstruction
Nov. 1949.....	Redding	Abdominal distention	No obstruction	None
Stated entries for abdominal distention.....				19
Stated operations for abdominal distention.....				12
Verified operations for abdominal distention.....				8
Verified obstruction.....				1

peated therapeutic colonic flushes given during the preceding three years, thus interfering with the normal function of the colon. The most important lesson to be learned from this case is that true obstruction can occur in some such cases, as it did once in the present instance. Unless the diagnosis of hysterical abdominal distention can be definitely established and true obstruction ruled out, exploration is mandatory if the patient does not improve.

## REFERENCES

1. Alvarez, W. C.: Hysterical type of nongaseous abdominal bloating, *Arch. Int. Med.*, 84:217-245, 1949.
2. Alvarez, W. C.: Personal communication with the author.
3. Barga, J. A., Adson, A. W., Lundy, J. S., and Dixon, C. F.: Functional abdominal distention simulating megacolon, *Am. J. Digest. Dis.*, 3:17, 1936.
4. Christianson, H. W., and Barga, J. A.: Functional abdominal distention simulating intestinal obstruction, *Proc. Staff Meet., Mayo Clinic*, 6:441-448, July 29, 1931.
5. Goldschmidt, cited by Alvarez.<sup>1</sup>
6. Krukenberg, cited by Alvarez.<sup>1</sup>
7. Purves-Stewart, J.: *The Diagnosis of Nervous Diseases*, ed. 9, Baltimore, Williams and Wilkins Company, 1945, p. 661.
8. Simpson, J. Y.: *The Obstetric Memoirs and Contributions*, edited by W. O. Priestly and H. R. Storer, Philadelphia, J. B. Lippincott Company, 1855-1856, Volume 1, p. 303.



## The Evaluation of Subjective Complaints in Relation to Disability Claims

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### SUMMARY

*Evaluating subjective complaints with regard to claims for disability compensation often is extremely difficult. The aim is fairness to the injured person and the insurance carrier. As the physician is the best source of information, he must make careful, unbiased observation of certain factors which will aid in arriving at a sound appraisal.*

IN the state of California, under the rulings of the Industrial Accident Commission, subjective complaints, including weakness of grip in the hands, are ratable conditions with regard to disability claims. The Permanent Disability Rating Bureau of the Industrial Accident Commission considers definite factors regarding these subjective complaints in order to arrive at the proper percentage of permanent disability which they represent. Therefore it is of utmost importance that the medical examiner properly describe these factors so that the Permanent Disability Rating Bureau is in possession of the correct picture of the condition. It is recognized by all concerned that in many cases it is extremely difficult to arrive at the true value of subjective complaints. This presentation deals primarily with the consideration of the factors generally used by the Permanent Disability Rating Bureau in evaluating them. In many cases it is not only a matter of the determination of the true degree of disability entailed in the subjective complaints *per se*; preexisting or coincidental factors may further complicate the problem and they must be properly evaluated. Even though the medical examiner believes he is unable to reach an exact appraisal of a given set of symptoms, nevertheless, it is definitely a medical problem, and the examiner, therefore, is the best source of information. In the final analysis, what is sought is fairness to the injured person and to the insurance carrier. Therefore, the medical examiner should consider the facts without bias and use reasonable judgment to arrive at conclusions.

It is important to have periodic check-up examinations of injured persons in all cases in which permanent disability is anticipated, and to report the results. These progress reports will permit the insurance carrier to properly allocate reserves for compensation and medical expense, and to revise them as the patient's condition changes. Also the chronologic record of the subjective complaints will assist in evaluating them.

A subjective complaint is one which is made by the patient of a condition perceivable only by him and is not evident to the examiner—for example, pain. Tenderness in a well healed amputation stump is purely a subjective complaint. This complaint and many subjective complaints challenge the doctor to establish a reason for their presence. In some cases it may be necessary to use the various tests for malingering. It is important to have a running record of the patient's complaints, including notes on the character, degree, frequency, and location of the conditions complained of, as well as joint function, and girth measurements. These factors need to be known and evaluated for permanent disability reasons. In all cases of subjective complaints, the physician should formulate an opinion as to how the conditions complained of affect the patient in his work: Are they a handicap, and if so, how much of a handicap? Also, there should be an evaluation of any preexisting conditions which could be contributory.

There are a multitude of subjective complaints such as of pain, tenderness, sensory changes, weakness, insecurity, instability, stiffness, coldness, clamminess, nervousness, worry, dizziness, ringing or buzzing in the ears, loss of smell, loss of sight, loss of hearing, and fatigue.

**Pain.** Pain cannot occur without sufficient stimulus on the pain receptor nerve endings or fibers. There are three types of stimuli capable of producing pain. First, mechanical, such as pressure from swelling or muscle spasm, or other abnormal stresses. Second, chemical stimuli. Third, thermal stimuli—heat or cold. There are various degrees of pain, and the degrees have been established to be: Slight, which is up to one-third of total pain; moderate, from one-third to two-thirds of total pain; and pronounced or severe, more than two-thirds of total pain. The examining physician, with the cooperation of the patient, will be able to define the degree of pain in one of the three categories, and also to establish the character of the pain, its frequency, and location. It should be noted how often and when the pain occurs, and, if it is constant, whether the degree varies. In location of pain, it should be known whether it is present on motion of a joint, and at what point in motion it occurs. Factors which aggravate or relieve pain should be taken into consideration. The examiner should evaluate the patient's threshold of pain, and express his opinion as to how the pain affects the patient at his work. It must be determined whether or not the pain is consistent with the patient's injury. Also pre-

existing contributory conditions should be considered. The examiner should formulate an opinion as to whether the pain in any way disables or handicaps the patient for his particular occupation, and, if so, to what extent.

The degree and duration of pain should be directly related to the type and extent of trauma. In the acute stages of trauma, whether it be contusion, laceration, or fracture, the objective observation of abnormal conditions should account for the subjective symptoms. The later complaints of pain and other subjective symptoms after the acute stage has long subsided are the ones which must be dealt with specifically in permanent disability rating. For example, in a fracture which has involved a joint space, pain will usually increase with use, and may become worse with weather changes. Fracture into a joint involves cartilage, and cartilage has a relatively poor blood supply, so that a longer period for healing, more subjective symptoms, and longer disability are reasonable. The disturbance of cartilage gives reason for pain when motion, weight bearing, or other stress is applied through the joint. As a result of pain, usually there are important secondary conditions in other parts of the extremity involved, the extent usually depending upon the degree of pain. Prolonged pain of practical degree should cause the injured person to "favor" the extremity, and this should result in measurable atrophy from improper use of muscles. For the same reason, stiffness can also be indirectly responsible for muscle atrophy.

The location of a fracture has a direct bearing upon complaints of pain. If a fracture has involved a weight-bearing bone such as a metatarsal, for example, and especially if there is plantar angulation of the fracture, complaint of pain is not unreasonable.

If there is complaint of pain after normal healing of a superficial skin laceration, the legitimacy of the complaint should be questioned. On the other hand, deep lacerations through the skin and underlying tissues such as nerves, fascia, and muscle may establish some foundation for complaints of pain as well as for other subjective symptoms. Severed nerves, as in amputations, can give rise to painful neuromas, or nerve filaments can be involved in a scar and cause pain.

Pain may be referred from one part to another, but it should follow the physiological nerve pattern, or fit a known pain pattern, as heart pain which may involve the left arm.

The complaints of hyperesthesia, hypesthesia, and paresthesia should be determined as to degree—slight, moderate, or severe. When a patient complains of sensory changes, it must be remembered that there is spinal cord segmental distribution, and

peripheral nerve distribution. Each has a quite definite and different anatomical pattern.

**Numbness.** The authenticity of a complaint of numbness encircling a whole part, as a leg or an arm, known as stocking and glove anesthesia, should be questioned in that it is not compatible with anatomical nerve patterns. Stocking or glove anesthesia usually extends as high on the limb as the site of injury.

Bizarre sensations may occur during the healing of a sutured nerve. Perhaps 12 to 18 months should be allowed to pass before the condition of a nerve involved in trauma should be considered static.

There are objective findings to aid in the substantiation of sensory complaints. If normal nervous energy is interrupted, coldness, clamminess, glossiness, and other trophic changes may be noted.

**Stiffness.** In appraising stiffness, the nature and extent of trauma are important factors. Long immobilization such as may occur in treatment, insufficiency of physical therapy, and contracture of scars are factors inductive to stiffness. Preexisting arthritis may either complicate or be the reason for the stiffness.

**Weakness.** Weakness, insecurity, and instability of a joint may be caused by paralyzed muscles, ruptured joint ligaments, "favoring" of an extremity, whether due to pain, stiffness, or for no known reason. Following internal derangement of a knee, the thigh muscles will usually lose normal tone in 72 hours or less. The atrophy can be overcome, after removal of the underlying cause, through muscle exercise, providing no other pathologic condition is present. Return of muscles to normal size and tone will reduce to a minimum the disability of weakness and instability.

Amputation, stiffness of fingers, and loss of muscle power are some of the factors in loss of grip. The setting of the forearm muscles normally places the clenched hand in dorsiflexion, the position of maximum grip. Dynamometer readings obtained by having the patient squeeze the dynamometer with the hand in palmar flexion should be less than readings obtained with the normal position of dorsiflexion.

If there are subjective complaints of dizziness, ringing in the ears, loss of hearing, blindness, nervousness, and fatigue, the examining physician should determine whether not they are consistent with the injury. It should be established how and to what extent they affect the patient in his work, and when and how often these complaints occur. Examination of the patient by a consultant in the particular field in which the subjective complaint falls may be indicated. Application of various tests for malingerers may be advisable.

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# The Precipitation of Clinical Poliomyelitis by Injections

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## SUMMARY

*In records of 1,321 cases of poliomyelitis in the city of Los Angeles in 1948, notation was made as to whether or not the patient had been vaccinated against smallpox or had received an injection of one kind or another in the period preceding the onset of poliomyelitis.*

*In children under 12 years of age, the incidence of poliomyelitis was slightly higher among those who had had recent vaccination or injection than among those who had not, and the incidence of paralysis was slightly greater also. However, the disparities were not considered statistically significant. They were not wide enough to warrant withholding immunization against other serious diseases on the strength of the possibility that in so doing a slight reduction in the incidence of crippling poliomyelitis might be effected.*

THE published reports<sup>1, 3, 4</sup> from Australia, England and Canada which are now being quoted in American literature inferring that immunizations and other equally mild traumatic procedures precipitate clinical poliomyelitis are causing concern to physicians interested in preventive medicine.

McCloskey<sup>4</sup> reported that in 33 of 340 cases of poliomyelitis investigated in Victoria in 1949 the patients had received injections of pertussis vaccine, diphtheria toxoid, or typhoid-paratyphoid vaccine within 60 days preceding the onset of the disease. In 30 of these cases the injections had been given within 30 days of onset—between seven and fourteen days preceding the disease in 21 cases. There was a tendency for localization of the paralysis in the extremity in which the injection had been given.

Director, Bureau of Medical Services, Los Angeles City Health Department, George M. Uhl, M.D., Health Officer.

Other reports<sup>2, 5</sup> tend to support these observations.

The possibility of vaccination's precipitating paralytic poliomyelitis was called to the author's attention in 1947 by Dr. Kenneth Sutherland, assistant health officer, Los Angeles County Health Department. He had observed three cases in which poliomyelitis developed within two weeks following smallpox vaccination with primary reactions. In all three cases, paralysis developed in the arm vaccinated. The three patients were members of one family. As a result of this observation Dr. Sutherland elected to delay the Los Angeles County school vaccination and immunization program in 1948. Los Angeles City Health Department officials decided to proceed as usual with the immunization program in schools within the city; 42,635 school children were immunized and 19,515 were vaccinated during the year, and 21,105 children (41,999 injections) were immunized and vaccinated in child health conferences.

A detailed epidemiological record was maintained on all cases of poliomyelitis reported in the city of Los Angeles during 1948 and 1949. The information was obtained from the patient or the parents of the patient at the time of illness or shortly thereafter. In Los Angeles, poliomyelitis occurs every month of the year, with low incidence in April and peak incidence in August or September. In 1948 the number of cases of poliomyelitis was the highest ever recorded in the city and the per capita incidence was the second highest. The incidence of the disease in relation to preceding injections and vaccinations is shown in Table 1.

Of the 1,321 cases in 1948, 30 occurred within 34 days after an injection of some kind. The average time interval between the injection and the onset of poliomyelitis was ten days with a range of zero to 34 days. In only one case was the interval more than 25 days. In 18 cases onset was within ten days of injection. One patient had paralysis only in the extremity receiving the injection; seven had paraly-

TABLE 1.—Poliomyelitis Cases Following Injections, by Months, 1948  
(Los Angeles City Health Department)

Month of Onset of Poliomyelitis	Cases				Known Injections and Vaccinations
	Total	Paralytic	Following Injection	Paralytic Following Injection	
January .....	1	1	0	0	4,236
February .....	1	0	0	0	5,407
March .....	6	5	0	0	9,541
April .....	3	3	0	0	9,131
May .....	22	19	0	0	9,064
June .....	45	29	2	1	3,470
July .....	198	133	2	1	3,587
August .....	286	208	4	2	3,867
September .....	334	234	7	6	3,620
October .....	221	164	8	7	15,719
November .....	148	124	7	7	22,804
December .....	56	45	0	0	13,703
Total .....	1,321	965 (73%)	30	24 (80%)	104,149



TABLE 2.—Analysis of Paralysis in Poliomyelitis Which Occurred Within 34 Days of Injection

	1948	1949
Paralysis or weakness in immunized extremity only	1	1
Paralysis or weakness both in extremity immunized and in other muscle groups	7	0
Paralysis or weakness in other extremities or muscle groups only	8	1
Paralysis with site of injection not reliably known	8	0
No paralysis	6	1
Total with history of injection	30	3

sis or weakness in the extremity or muscle group receiving the injection and in other muscle groups; eight had involvement of muscle groups unrelated to the site of injection; in six cases there was no paralysis. In eight instances the site of the injection could not be reliably identified. In the latter group, four patients had paralysis of the left arm following injection of diphtheria toxoid or combined diphtheria-pertussis-tetanus toxoids, one had paralysis of the lower extremities following a lumbar puncture, one had paralysis of the right hand and right lower extremity following intramuscular "menstrual shots," one had paralysis of the left arm following injection of an unidentified substance for an unknown reason, and one had bulbar paralysis following injection of penicillin.

The kinds of vaccination or injection in the 30 cases in which poliomyelitis followed these procedures were: Nine diphtheria toxoid, four tetanus toxoid, six diphtheria-pertussis-tetanus, one smallpox, six penicillin, one spinal puncture, one anti-allergic, one "menstrual shot" and one unknown.

The median age of the 30 patients with poliomyelitis following injection was 5 years. The median age in the total of 1,321 cases was 7 years. Seventeen of the patients in the group of 30 were males and 13 were females, with the males younger and the females older than the median of the study group.

The number of cases following injections increased in the same proportion as all cases increased during the summer. This would be expected on chance alone. Paralysis occurred in 77.8 per cent of the recently immunized patients, against 74.3 per cent of all patients. The difference is not statistically significant. The validity of comparison of other items in Table 3 is unknown.

In 1949 there were 446 cases of poliomyelitis in which there was information as to whether or not there had been injection within 30 days of onset. Only three patients had a history of injection. One had paralysis or weakness in the injected extremity only, one had paralysis or weakness in a muscle group other than that at the site of injection, and one did not have paralysis.

Although there has been a steady decline during the last 25 years in morbidity and mortality from the major communicable diseases, except poliomyelitis, there were in Los Angeles during this time, 16,110 cases of diphtheria with 1,015 deaths, 34,948 reported cases of pertussis with 652 deaths, and 385 cases of tetanus with 221 deaths—a combined total of 51,443 cases and 1,888 deaths from three diseases (Table 4) which can be practically eliminated through universal use of immunization. As there were, in the same period, 6,527 cases of poliomyelitis with 380 deaths, it appears inadvisable to permit the possible chance occurrence of poliomyelitis following injections to interfere with the continued mass elimination of diseases equally crippling and fatal.

TABLE 4.—Diphtheria, Tetanus and Pertussis Cases and Deaths Compared With Poliomyelitis Cases and Deaths, Five-Year Periods 1925-1949 (Los Angeles City)

	Diphtheria, Tetanus, Pertussis		Poliomyelitis	
	Cases	Deaths	Cases	Deaths
1925-29	13,392	674	418	79
1930-34	13,951	583	1,866	91
1935-39	11,031	358	707	58
1940-44	8,143	161	721	40
1945-49	4,926	112	2,815	112
Total	51,443	1,888	6,527	380

## REFERENCES

1. Geffen, D. B.: The incidence of paralysis occurring in London children within four weeks after immunization, *M. Officer*, 83:137-140, April 8, 1950.
2. Hill, A. B., and Knowelden, J.: Inoculation and poliomyelitis; a statistical investigation in England and Wales in 1949, *Brit. M. J.*, 2:1-6, July 1, 1950.
3. Martin, J. K.: Local paralysis in children after injections, *Arch. Dis. Childhood*, 25:1-14, March 1950.
4. McCloskey, B. P.: The relation of prophylactic inoculations to onset of poliomyelitis, *Lancet*, 1:659-663, April 8, 1950.
5. Science News Letter, 58:85, August 5, 1950: News Report of Sixth International Congress of Pediatrics in Zurich, Switzerland.

TABLE 3.—Poliomyelitis Cases Per Cent of Immunized\* and of Total Population Under 12 Years of Age

	1948		1948	
	Jan.-Dec. (12 Mo.)	July-Nov. (5 Mo.)	Jan.-Dec. (12 Mo.)	July-Nov. (5 Mo.)
Population immunized or vaccinated	83,255	40,826	318,000	322,000
Number of cases in group	27	25	843	759
Incidence of disease	0.032%	0.061%	0.026%	0.056%
Number paralytic	21	20	626	560
Incidence of paralytic cases	0.025%	0.049%	0.019%	0.042%
Paralysis in group with disease	77.8%	80.0%	74.3%	73.8%

\*By Los Angeles City Health Department.



## Legal Duties of Physicians

ANDREW A. SANDOR, M.D., LL.B., *Alhambra*

### SUMMARY

*The history of the physician's legal duties has been traced from the first recorded writings of the Babylonian era to the present day. There has been a transition from the days of absolute liability to the modern idea of liability based on culpability.*

*The doctrine of stare decisis developed in early English law forms the very backbone of our own jurisprudence.*

*Broadly, if a physician renders reasonable care and skill, he is absolved from liability.*

*Some of the more important legal duties and proscriptions applying to physicians are discussed in particular in this presentation.*

THE concept that a physician owes a legal obligation to his patient is not new.<sup>1</sup> Writings on medical jurisprudence go back at least 4,000 years. About 2300 B.C. the Code of Hammurabi, the Babylonian, was enacted. One of the provisions found therein states: "If the doctor has treated a gentleman for a severe wound with a lancet of bronze and has caused the gentleman to die, or has opened the abscess of the eye for a gentleman with the bronze lancet and has caused the loss of the gentleman's eye, one shall cut off his hands." However, if the patient were a mere slave, and his life was lost because of the surgeon's treatment, then the physician had but to furnish the master with another slave. The penalty imposed upon a physician bore a direct relationship to the patient's standing in the community. The physician of those days was held to be an insurer of his treatment. He practiced at his peril and paid a penalty if he failed in his trust; there existed absolute liability, and no extenuating circumstances were allowed to be pleaded by the physician in his behalf.

The first departure from these very harsh rules of the Babylonians, that a physician must practice at his peril, is found in the later rules of the Egyptians. Here, general rules were established and approved by the most learned and experienced physicians for the conduct of the physician in relations with his patient. As long as the physician followed established treatments for a disease, even if the result were unfavorable to the patient, the physician was absolved from any liability. But if he departed from the established procedure, and the patient had the misfortune to die, the physician was liable to be beheaded. Experimentation is still held in disfavor by the law today, and many a judgment has been rendered against a physician in a malpractice action based on treatment with untried drugs and methods.

Following the Egyptian era came the time of Hippocrates, whose influence dates from about 400 B.C. It is generally conceded that the practice of medicine as a science dates from this period; yet the medical writings of that day contain no references to the physician's conduct in relations with patients. As far as can be determined, the Greeks had no laws concerning malpractice. But there must have been some recognition that a physician owed a duty to his patient, for Plutarch, in his "Lives of Illustrious Men," tells the story of Glaucus, a physician of Ephesus, who left his patient to go to the theatre. In his absence the patient partook excessively of food and died; and Alexander condemned the physician to death for breach of professional duty.

During the Dark Ages (476-1000) the Church instituted a long series of edicts which were primarily aimed at malpractice by the monks.

### INFLUENCE OF ROMAN LAW

In the early Roman law are records indicating that negligent conduct by the physician was used as a measure of legal liability. Smith<sup>1</sup> listed the following dicta which emanated from the Roman courts:

1. That a physician incurred a legal liability when he was guilty of negligence.
2. That this negligence could consist of misfeasance or nonfeasance, which arose from ignorance due to lack of adequate training, lack of skill in the particular undertaking, or failure to attend or to care for the patient after a properly performed operation.
3. That if a physician caused injury by an unauthorized operation, he could be held for battery.
4. That no responsibility for medical practice exists, without proof of fault.

The Roman law as it expanded was introduced into continental Europe about 1200 A.D. and became the basis of medical jurisprudence throughout Europe. A law for the regulation of the practice of medicine, which included drug control, was promulgated in 1240 by the Emperor Frederick II. To Germany belongs the credit of enacting the first law which provided for the examination of medical witnesses in the determination of questions in which medical knowledge could afford the only satisfying answers. This was in 1532, during the reign of Emperor Charles V, when a law was passed which provided that in every case of violent death, the opinion of medical men should be formally taken. Thus there came to be developed definite standards by which to judge the knowledge and skill of a physi-

cian. The physician came to be held responsible not only for intentional injuries but for negligence of ability which the person employing his services rightfully could presuppose him to have.

After the Norman conquest in 1066 came the development of the English common law, which to this day is the basis of our own jurisprudence. Instead of definite fixed rules, the common law, as it developed, was a flexible system which adapted itself to conditions as they arose. When a question arose for which there was no applicable custom or precedent, the judges would decide according to their ideas of right and justice. During the reign of Richard Coeur de Lion at the close of the twelfth century, it became the practice to keep an official record of the cases decided by the courts of common law. They were known as the Plea Rolls, and they have been maintained in an unbroken series down to the present. From the Plea Rolls there developed a body of recorded decisions. Such decisions were usually followed as precedents in subsequent similar cases, and there was developed the doctrine of *stare decisis*—that a decision of one of the higher courts has the force of law and is binding in all like future cases. One of the most striking features of the English common law is this adherence to precedent. These precedents control the litigated question, and if a court departs from them it is likely to have its findings set aside. When a novel question, for which there is no precedent, arises in a state court, then the court will look to the precedents of a sister state for its decision on a like question.

Smith,<sup>1</sup> in his studies of the development of malpractice, stated that the precedent for all malpractice actions had its origin in the year 1615. This occurred in the case of *Everard v. Hopkins*, and the historical precedent which adheres to this date was laid down by Sir Edward Coke, "father of the common law" and at that time Chief Justice of the Court of King's Bench. This was an action against a physician for negligence, separate and apart from any contractual relation. The plaintiff's master had employed a physician to treat his servant who was injured by a cartwheel. No contract was entered into between the physician and his patient. The doctor employed "unwholesome medicine" which caused the servant to become more ill. Lord Coke said that the master, of course, could maintain an action upon the contract; the servant, however, not being a party to the agreement, could not sue thereon, but could have an action upon the case for the damage done by the treatment.

From the foregoing discussion, it can be readily appreciated that a legal obligation devolved upon the physician because of the universal demands put forward by society for its own protection. These demands have become more and more exacting with the development of medicine, and have reached their present-day status with the universal requirement that medical licensure is a condition precedent to the practice of medicine throughout the entire civilized world.

#### NATURE OF THE PHYSICIAN-PATIENT RELATIONSHIP

Before proceeding with the discussion of the physician's legal obligations, it would be well first to determine when a relationship comes to exist between a physician and a patient, for it is easily understandable that if a physician has no legal duty owing to a patient, he cannot be negligent toward that patient. This is best illustrated in the so-called good Samaritan situation: For instance, a physician traveling along the highway comes upon the scene of a severe automobile accident and sees several badly injured persons. The physician owes no legal duty to render aid to the injured persons, although he may have a moral duty to do so. If, because he does not give them first aid, their injuries are aggravated, the physician cannot be held liable. But once the physician does give medical aid, he then assumes a duty to the patient, and will be liable for any negligent conduct which might ensue; and it would be no defense to the physician that such services were rendered gratuitously.

Once having established a contractual relationship with the patient, the physician is duty bound to maintain his contract. Illustrative of this is the case of *Hood v. Moffet*<sup>2</sup> in which a husband engaged the services of an obstetrician for a stipulated fee. The patient was near term, and at the time the contract was made the physician had not as yet seen the patient. When the patient went into labor, the husband sent for the physician who refused to come because he was in attendance on another patient who was about to deliver. The court held that the plaintiff had a cause of action for breach of contract, and rejected the physician's excuse, stating that if one assumes conflicting obligations to two different persons he cannot exonerate himself from liability for breach of one of the obligations by choosing to discharge the other.

It should be noted, however, that it is becoming increasingly evident that the refusal of a physician to enter into a contractual relationship with a patient may constitute a tort. Under the statutes of the various states a physician has no right to refuse assistance to one in urgent need of medical care.<sup>3</sup> The ambit of legal liability of the physician is ever extending.

#### STANDARD OF CARE REQUIRED

When a physician undertakes the treatment of a patient, he impliedly contracts and represents not only that he possesses the reasonable degree of skill and learning possessed by others of his profession in the locality, but that he will use reasonable and ordinary care and skill in the application of such knowledge to accomplish the purpose for which he is employed; and if injury is caused by a want of such skill or care on his part, he is liable for the consequences which follow.<sup>4</sup>

And it also has been held that if a physician undertakes to treat the patient as a specialist in the

treatment of a certain organ, injury or disease, he is bound to bring to the aid of one so employing him, that degree of skill and knowledge which is ordinarily possessed by those in the same general locality who devote special study and attention to that particular organ, injury or disease, its diagnosis and its treatment, having regard to the state of scientific knowledge at the time.<sup>5</sup>

By "reasonable and ordinary care" is meant also that the physician will use all modern diagnostic aids which are available for use by the physician. Claims arising out of the non-use of x-ray examination form one of the largest and most important group of cases under malpractice actions. The trend of decisions coming from the higher courts seems to point to a growing attitude that the courts will take judicial notice, without proof, that omitting to make use of x-ray examination as a diagnostic aid in cases of fracture constitutes malpractice.

Illustrative of this is the case of *Johnston v. A. C. White Lumber Co.*<sup>6</sup> The Idaho statute under which action was brought requires an employer to furnish an employee with all reasonable medical and surgical care. The court in construing the statute said that reasonable care contemplates the use of all modern diagnostic aids, and held the employer liable when the company physician omitted to use x-ray examination in the diagnosis of an injury to an employee.

Obviously it is advisable for a physician to learn what some of the legal obligations are which he assumes. In a subject so vast it would be almost impossible to list all the legal duties of the physician in the limited scope of this presentation, and the reader is referred to the treatise of Regan<sup>7</sup> for a most complete discussion of this question. An attempt will be made to list and discuss some of the more important duties, and to illustrate them with actual cases.

#### DUTY TO KEEP ABREAST OF ADVANCES OF MEDICAL SCIENCE

A physician is legally obligated to keep abreast of the advances made by his profession.

In *Vigneault v. Dr. Hewson Dental Co.*, the defendant dentist in preparation for the extraction of teeth used multiple injections of a local anesthetic agent. Following the extraction osteomyelitis of the jaw developed. Evidence was permitted to be introduced that the block method of injection was then being currently used, and that the possibility of osteomyelitis was much less by this "advanced method." The defendant was held to be negligent in not keeping abreast of the developments in his profession.<sup>8</sup>

In *Ferrell v. Ellis*, the defendant physician attempted to disclaim liability for negligence on the ground that all country physicians know no better. The court held that the standard of care is based on present conditions of medical knowledge and not on past conditions acquiesced in by country folk.<sup>9</sup>

#### DUTY NOT TO REVEAL CONFIDENTIAL INFORMATION

A physician is under legal obligation not to reveal any confidential information imparted to him under the physician-patient relationship. In fact, many of the states have made such a violation a statutory offense. The New York statute reads: "A person duly authorized to practice physic or surgery shall not be allowed to disclose any information which he acquired in attending a patient in a professional capacity, and which was necessary to enable him to act in that capacity."

If a physician, under a mistaken diagnosis, publicizes that a patient of his has a venereal disease, such an act is slander *per se*, and the patient need not offer any proof of special damage since the law presumes that one suffered damages simply by the publication of such a diagnosis.<sup>10</sup>

#### DUTY TO OBTAIN CONSENT FOR SURGICAL OPERATION

A physician has a legal duty to obtain the consent of the patient before attempting surgical treatment, and in the case of a minor the parents' consent must first be obtained.

In *Hivey v. Higgs*, the patient consulted the defendant physician, who advised the plaintiff that it was necessary for her to have an operation performed upon the septum of her nose, and the plaintiff then and there employed the doctor to perform the operation. While the patient was under anesthetic the physician, instead of operating upon the septum of the plaintiff's nose, removed the patient's tonsils. The court held that the physician had no such authority to operate, and that his wrongful act constituted assault and battery, although the physician in his defense contended that he merely committed a breach of contract, and therefore the plaintiff should recover only nominal damages.<sup>11</sup>

In *Mohr v. Williams*, the patient consented to an operation upon his right ear, and the surgeon, finding a similar condition in the other ear, operated upon that one too. The court said, in finding for the patient, that where one consents to an operation on the right ear, the physician has no privilege to operate on the left ear, regardless of the necessity of such operation, unless such operation is necessary to save the life of the patient.<sup>12</sup>

It has even been held that the performance of an unauthorized autopsy is an interference with one's property rights.<sup>13</sup> The common law has always been that a corpse is personal property belonging to the decedent's family, and that any interference by one person with another's personal property is a tort.

#### DUTY TO EXERCISE THE UTMOST OF GOOD FAITH AT ALL TIMES

The physician-patient relationship is in the nature of a trust, the patient being the beneficiary and the physician the trustee. The courts have always zealously guarded the rights of the beneficiary and have demanded that the trustee discharge his duties with the utmost of good faith. The law demands that the physician act in the same capacity and will not



tolerate the practice of fraud and deceit on the patient.

In *Moses v. Miller*, the defendant physician undertook to remove the plaintiff's gallbladder. During the course of operation, the physician for some reason abandoned the operation. The physician, however, informed the patient that he did remove her gallbladder. The fraud was discovered during a subsequent abdominal operation some years later. The patient was allowed to recover damages for this fraudulent concealment by the physician that he had not removed the gallbladder.<sup>14</sup>

In another action involving the practice of fraud on the rights of the health of the patient, the plaintiff was allowed recovery. Here the defendant physician knew that his treatment could be of no benefit, and yet he induced the patient to continue with the treatment and thus to incur a large bill by assurances that the treatment was well suited to effecting a cure.<sup>15</sup>

In *Tompkins v. Board of Regents of University of New York*, the physician prescribed narcotic drugs for addicts without proper medical basis, solely to satisfy the addiction. This was held to constitute "fraud and deceit" in the practice of medicine and to justify suspension of the physician's license under the New York statute. The court of appeals, in affirming the lower court, said that issuing a prescription for narcotic drugs to an addict tends to deceive those concerned in enforcing narcotic drug laws.<sup>16</sup> Thus, by statute, the physician owes a duty to the public, and the violation of a statute affecting the public welfare constitutes a crime, a much more serious offense than a tort, which is concerned only with the violation of a private right.

#### LEGAL DUTY TO RENDER SERVICE

After the physician-patient relation has been established, unless otherwise limited in the contract of employment, it cannot be terminated at the mere will of the physician, but must last until the treatment is no longer required, or until it is dissolved by the mutual assent of the parties, or until reasonable notice is given in order that the patient may have an opportunity to engage the services of another physician.<sup>17</sup>

In *Tadlock v. Lloyd* the plaintiff employed the physician to attend his sick child. The physician examined the patient and diagnosed the illness as scarlet fever. The following day the physician was requested to call and see the child again, and he did not do so, making the statement that the disease must run its course. Subsequently several other requests were made to the doctor to call on the patient. Finally, in response to an urgent appeal, he did visit the patient. The child died shortly after his arrival. The action here was not founded upon active malpractice but upon negligence of proper care and attention. The omission of the physician's legal duty was the proximate cause of the death of the child. The court said that when a physician makes no

effort to inform himself of the condition of his patient, or of the progress of the malady, if damage results therefrom, the physician is liable.<sup>18</sup>

#### DUTY NOT TO EXPERIMENT

It is a physician's legal duty to follow the accepted methods of practice prescribed by his profession.

In *Owens v. McCleary* the evidence showed that the defendant physician treated the patient for hemorrhoids, and that in doing so he did not use any of the methods of treatment approved by his profession, but on the contrary, employed one distinctly disapproved by the profession, thereby inflicting serious injury on the patient. The court said that not to employ the methods followed or approved by a physician's school of practice, evidences either ignorance or experimentation on his part. If the physician wishes to avoid civil liability, he must employ, in the treatment of patients, methods which are recognized and approved by his profession as most likely to produce favorable results.<sup>19</sup>

In *Graham v. Dr. Pratt Institute*, the patient went to the defendant physician in response to a newspaper advertisement that smallpox pittings could be successfully removed. The results of the treatment were unsatisfactory, and the patient brought action on grounds of malpractice. Evidence was introduced to show that there is no known treatment in medical science for the cure or removal of smallpox pits. The court said that if a physician applies a treatment not sanctioned by medical society, and which the physician is bound to know is not sanctioned, the law imputes malicious intent in the physician's conduct.<sup>20</sup>

#### DUTY TO REFER TO ANOTHER PHYSICIAN

If a physician is consulted by a patient with regard to a disease which he has not the skill and knowledge to treat, it is his legal duty to so inform the patient and to suggest the services of another physician.

In *Mernin v. Cory*, the defendant dentist failed to extract an entire tooth. On subsequent visits he attempted to remove the remaining fragment but without success. As a result of excessive manipulations, infection developed in the patient's jaw. The patient repeatedly asked the dentist if it would not be proper for her to consult a physician and surgeon, and the dentist advised her that this was unnecessary. Relying on such advice, she postponed consulting a physician for a long time, and afterwards when she did, it was too late for her to receive benefit from any treatment. The court found that the dentist violated a legal duty in not referring the patient to a physician when he found that he could not handle the situation.<sup>21</sup>

#### DUTY TO GIVE INSTRUCTIONS TO THE PATIENT

It is the legal duty of a physician, in dealing with a case, to give the patient all necessary instructions applicable to the diagnosis, so that the patient may have a better understanding of the ailment and thus



cooperate more intelligently with the physician in carrying out the proper treatment.

In *Everts v. Worrel*, it appeared that the physician told the patient that his skin condition was acne. The fact was that the physician actually believed the patient had syphilis and treated him on this basis. The court said that by keeping the patient in ignorance of his true state, he would not know or appreciate the consequences that might follow certain acts or omissions on his part.<sup>22</sup>

In *Newman v. Anderson*, the physician was found to be negligent in omitting to give the patient proper instructions as to the application and removal of an ointment used for the treatment of a burn.<sup>23</sup>

#### OTHER LEGAL DUTIES OF THE PHYSICIAN

No attempt has been made herein to mention all the legal duties of the physician, but for the sake of completion it should be noted that a physician has been held to have a duty to an unborn child;<sup>24</sup> that he must respect the right of privacy of his patient;<sup>25</sup> and, that he cannot interfere with the personal freedom of the patient.<sup>26</sup>

In addition to the duties owed to his patient, there are many statutory duties imposed upon the physician by the state, the violation of which constitutes negligence. Some of these include the reporting of communicable diseases to the health authorities, the instillation of silver nitrate into the eyes of the newborn, and the recently enacted statute in California forbidding the physician to participate in rebates.

And to round out the subject of the physician's liability, it is necessary to state that besides the legal duties owed to the patient and the state, a physician still owes a duty to third persons who come within the sphere of his activities. Thus a husband can maintain an action against the physi-

cian for the loss of his wife's services; a third person who becomes infected from a negligently treated carrier has a cause of action against the physician; and, finally, a physician can be liable to a person through the negligent acts of his employees.

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#### REFERENCES

1. Smith, Hubert Winston: Legal Responsibility for Medical Malpractice, J.A.M.A., 116:941, Mar. 8, 1941.
2. Hood v. Moffet, 109 Miss., 757.
3. Teller, Ludwig: Torts, Harmon Publications, N. Y. 10, N. Y., 1948.
4. Sim v. Weeks, 7 Cal. App. (2d) 28.
5. Ram v. Twitchell, 82 Vt. 79.
6. Johnston v. A. C. White Lumber Co., 217 Pac. R. 979.
7. Regan, L. J.: The Doctor and Patient and the Law, 2nd Ed., St. Louis, C. V. Mosby Co., 1949.
8. Vigneault v. Dr. Hewson Dental Co., 15 N.E. (2d) 185.
9. Ferrell v. Ellis, 129 Iowa 614.
10. Harriott v. Plimpton, 44 N. E. 992.
11. Hively v. Higgs, 120 Oregon 588.
12. Mohr v. Williams, 95 Minn. 361.
13. Coty v. Baughman, 210 N. W. 348.
14. Moses v. Miller, 216 Okla. (2d) 979.
15. Logan v. Field, 75 Mo. App. 594.
16. Tompkins v. Board of Regents of University of New York, 295 N. Y. 286.
17. Nash v. Royster, 189 N. C. 408.
18. Tadlock v. Lloyd, 65 Colo. 40.
19. Owens v. McCleary, 281 S. W. 682.
20. Graham v. Dr. Pratt Institute, 163 Ill. App. 91.
21. Mernin v. Cory, 79 Pac. R. 174.
22. Everts v. Worrel, 197 Pac. R. 1043.
23. Newman v. Anderson, 217 N. W. 306.
24. Stemmer v. Kline, 17 Atl. (2d) 58.
25. DeMay v. Roberts, 46 Mich. 160.
26. Jillson v. Caprio, 181 Fed. (2d) 523.

# CASE REPORTS

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- ◀ Chronic Idiopathic Hypoparathyroidism Simulating Epilepsy
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## Chronic Idiopathic Hypoparathyroidism Simulating Epilepsy

### Report of a Case

WILLIAM SCHOTTSTAEDT, M.D., and GILBERT S. GORDAN, M.D., Ph.D., *San Francisco*

CHRONIC idiopathic hypoparathyroidism is an uncommon disease which has been recognized only recently. It is important to discover the condition in its early stages, for delay in correction of the fundamental metabolic disturbance may result in irreversible damage. Because the presenting symptom is often that of convulsions, the condition is frequently mis-diagnosed as epilepsy (as in the case presented here). Anticonvulsant drugs may control the seizures but do not affect the basic disease process.

The following case illustrates the problem of diagnosis, the course of the disease, and the response to therapy.

### CASE REPORT

A white, married school teacher, aged 37 years, entered the out-patient department of the University of California Hospital on February 26, 1948, with complaint of convulsive attacks during the preceding five weeks. The first episode had occurred three weeks after the birth of a fourth child. Each attack consisted of loss of consciousness without premonition, tonic spasm of the body in extension without convulsive movement, biting of the tongue, or urinary incontinence, followed by several hours of deep sleep from which the patient awoke with severe headache that subsided gradually. There were no muscle cramps, and the attacks were not associated with stridor. The husband remarked upon the patient's "jumpiness" at night and said she seemed to have become less stable emotionally. In addition the patient's memory was severely impaired.

The family history and past history were not contributory. The patient's four pregnancies had terminated in full-term normal deliveries without complications; all the children were living and in good health. Upon physical examination, slow, halting speech and loss of facial expression were noted. Otherwise, the results of examination at that time were considered normal. An electroencephalogram was characterized

by both generalized and focal dysrhythmia of nonspecific and paroxysmal patterns. The generalized dysrhythmia was exaggerated with hyperventilation and was compatible with convulsive susceptibility of moderate or pronounced degree. The focal dysrhythmia appeared to center in the right temporal and right frontal regions.

The patient entered the hospital on March 28, 1948. The physical condition was unchanged except for positive Hoffmann signs bilaterally with hypoactive knee and ankle jerks. There was considerable tightness of muscles and joints. In x-ray examination of the skull a density which, in retrospect, may have been a calcification in the basal ganglia was observed. Pneumoencephalograms were done and 100 cubic centimeters of clear fluid was removed. It contained 22 mg. of protein per 100 cc., and no cells; reactions to Pandy and Wassermann tests were negative and the colloidal gold curve was normal.

The patient was instructed to take diphenylhydantoin, 0.1 gm. daily, and phenobarbital, 0.03 gm. three times daily. One mild attack occurred the day after discharge, but none thereafter. However the patient remained quite confused mentally, could not be left home alone, had definite disturbance of affect and a tendency to laugh or cry without apparent reason.

In December 1948 the patient complained of blurring of vision. Incipient subcapsular cataracts were noted and in February 1949 an extracapsular extraction of the lens of the right eye was done. On a follow-up visit the following month, a physician who had not previously observed the patient, noting the combination of convulsive disorder and bilateral cataracts, ordered blood calcium and phosphorus determinations. The serum calcium level was 4.3 mg. and the phosphorus level 7.9 mg. per 100 cc., with serum proteins 6.3 gm. per 100 cc. (drop method). The patient was returned to the endocrine clinic where positive Chvostek and Trousseau signs and absence of calcium from the urine were noted. She was hospitalized with a tentative diagnosis of idiopathic hypoparathyroidism on June 8, 1949.

At this time the patient was thin, appeared middle-aged, spoke hesitantly and had occasional difficulty in articulation. Her memory was poor and her affect flat. Occasional jerking movements of the arms and a coarse tremor were noted. The joints were tight owing to muscle spasm, and the reflexes were generally hypoactive. Chvostek and Trousseau signs were strongly positive.

From the Endocrine Clinic of the Division of Medicine, University of California School of Medicine, San Francisco, California.

In an electrocardiogram there was a prolonged Q-T interval (0.50 second) owing to a long S-T segment followed by a normal T wave. The electroencephalogram was similar to the first record and was not altered by intravenous injection of calcium. In x-ray examination of the skull, calcifications in the basal ganglia and a semilunar calcification in the left anterior fossa were noted. No evidence of nephrocalcinosis or stones in the urinary tract was observed in x-ray examination of the abdomen. X-ray studies of the entire mouth were carried out, but the stubby roots of teeth characteristic of the occurrence of hypoparathyroidism early in life were not present. This was considered evidence that the disease had developed after eruption of the permanent teeth. Because of reports of monilia infection in association with hypoparathyroidism,<sup>3</sup> cultures were made of material from the throat but the fungus was not grown on the medium.

Blood cell count, reaction to a Wassermann test, alkaline phosphatase content, sugar content (fasting) and corrected sedimentation rate were normal. Results of routine tests of the urine were normal, and repeatedly negative reaction to the Sulkowitch test demonstrated the absence of calcium from the urine.

Diphenylhydantoin and phenobarbital were discontinued on entry. Shortly thereafter the Ellsworth-Howard test<sup>2</sup> was carried out to establish whether or not the patient was responsive to parathyroid hormone. Two hundred units of parathyroid extract were given intravenously. Urine specimens were collected before and after injection and tested for phosphate clearance. Results were as follows:

Time	Blood		Urine		Phosphate Clearance
	Mg. per 100 cc. of Calcium	Phosphorus	Vol.	Phosphate (mg. per 100 cc.)	
6 to 8 a.m.	4.8	6.6	400 cc.	5.6	160 cc./hr.
8 a.m. 200 USP units parathyroid extract given intravenously					
8 to 10 a.m.	....	....	755 cc.	9.0	504 cc./hr.
10 to 12 m.	5.4	6.2	750 cc.	8.0	480 cc./hr.

The threefold increase in phosphate clearance clearly demonstrated that the patient was responsive to parathyroid extract and that the hypoparathyroidism resulted from a deficiency of parathyroid hormone rather than from refractoriness to this hormone.

Following this test the patient was given dihydrotachysterol (A.T. 10), 1 cc. daily, with a regular diet. As improvement was slow, calcium gluconate and vitamin D were added. Since increasing the serum calcium level without simultaneously lowering the serum phosphorus level favors the development of metastatic calcifications, aluminum hydroxide was given to suppress absorption of phosphorus. As improvement occurred, the urinary excretion of calcium became normal (Sulkowitch: two plus).

The patient was discharged from the hospital on a regular diet with dihydrotachysterol, 1 cc. daily, calcium lactate, 2 gm. daily, aluminum hydroxide, 15 cc. four times daily, and vitamin D, 150,000 units daily. These medications have been maintained and the chemical components of the blood have gradually returned to normal. It has been possible to reduce the dose of dihydrotachysterol to 0.5 cc. per day, on which the patient is free of symptoms or signs of tetany.\* Reaction to the Sulkowitch test for calcium remains two plus, and the serum calcium content is 12 mg. per 100 cc. and the phosphate content 3.7 mg. per 100 cc.

The patient stated that she feels more relaxed, no longer has the twitchings and "jumpiness" formerly so annoying,

\*Current cost to a private patient of the medication presented in this case is approximately \$17.70 per month at most pharmacies.

is more stable emotionally, and feels (and her family agrees) that she has regained much of her memory. She has taken no anticonvulsants since discharge. An electroencephalogram taken in September 1949 showed no essential difference from previous records; the intracranial calcifications remain unchanged. The patient is not as alert mentally as she was before the illness but her condition is better than it was during the time anticonvulsant medication was being given. The husband, who had given up his job to take care of her, has returned to work since the patient can now care for herself and her home.

#### DISCUSSION

The presenting symptoms of idiopathic hypoparathyroidism are extremely varied. The patient may first complain of asthma because of stridor associated with the attacks, of arthritis because of joint stiffness due to muscle spasm, of dim vision because of cataracts, or of epilepsy because of convulsive seizures. Convulsive attacks and papilledema may suggest the possibility of a brain tumor. The diagnosis, however, can be made easily if the possibility of hypoparathyroidism is kept in mind. Positive Chvostek and Trousseau signs should indicate the presence of tetany clinically. The Sulkowitch test\* will demonstrate the absence of calcium from the urine and is a simple method for establishing a presumptive diagnosis which then can be confirmed by determining serum calcium and serum phosphorus levels.

The objectives of treatment also are simple—to increase the serum calcium level and to decrease the serum phosphorus level. Unless both objectives are attained, abnormal calcifications may continue to form. The best agent to use for this double purpose is dihydrotachysterol. Vitamin D may be used but should be combined with aluminum hydroxide to decrease phosphorus absorption. Early recognition and treatment of the condition are required to prevent permanent mental damage.

#### SUMMARY

A case of chronic idiopathic hypoparathyroidism simulating epilepsy has been presented. A few simple procedures for establishing the diagnosis have been emphasized. These are the Chvostek and Trousseau signs and the Sulkowitch test. Blood calcium and phosphorus determinations will establish the diagnosis. The importance of early treatment is stressed, since only by prompt therapy can the patient avoid aberrant calcifications which may result in permanent visual impairment and mental deterioration.

#### REFERENCES

1. Albright, F., and Reifenstein, E. C., Jr.: *The Parathyroid Glands and Metabolic Bone Disease*, Baltimore, Williams & Wilkins, 1948.
2. Ellsworth, R., and Howard, J. E.: Studies on the physiology of the parathyroid glands. VII. Some responses of normal human kidneys and blood to intravenous parathyroid extract, *Bull. Johns Hopkins Hosp.*, 55:296-308, Nov. 1934.
3. Sutphin, A., Albright, F., and McCune, D.: Five cases (three in siblings) of idiopathic hypoparathyroidism associated with moniliasis, *J. Clin. Endocrinol.*, 3:625-634, Dec. 1943.

\*The Sulkowitch reagent consists of oxalic acid 2.5 gm., ammonium oxalate 2.5 gm., glacial acetic acid 5.0 cc., and distilled water q.s. ad 150 cc. The test is performed by adding 2 cc. of the reagent drop by drop to about 5 cc. of urine in a test tube and noting the amount and speed of appearance of a precipitate. Results are recorded as zero if no cloud appears within two minutes, one or two plus if a fine or heavier cloud appears after 30 seconds, and three or four plus if a flocculent or curdy precipitate appears in less than 30 seconds.

## Topical Use of Cortisone in Erythema Multiforme Bullosum

### Report of a Case

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**T**OPICAL application of cortisone, a method of use on which no report could be found in the literature, was employed with good result in a case of vesicular and bullous dermatosis.

An 85-year-old white woman had been confined to bed for three years with paresis of the right arm and leg following a cerebral hemorrhage from hypertension. Cardiac decompensation also was present, and from time to time numerous drugs, including sedatives, diuretics, laxatives, and cardiac medications had been given. Three weeks before the patient was observed by the author, bullae and vesicles began to develop. When first observed the patient had many discrete bullae, ranging in size from that of a grape to that of a lemon, scattered heavily over the arms, legs, chest, abdomen and back. Many of the bullae were on a non-erythematous base. Nikolsky's sign was absent. There was one small ulcer in the mouth. On the back were many erythematous macular iris lesions. A diagnosis of erythema multiforme bullosum was made.

Dressings soaked in a 1:8000 solution of potassium permanganate were applied and Benadryl® was given by mouth.

All former medication was discontinued, but on the advice of an internist digitalis therapy was started. New vesicles and bullae continued to appear and the condition of the patient appeared to be deteriorating. Cortisone was given intramuscularly, 200 mg. the first day and 100 mg. daily thereafter. The patient's spirit rose and there was some lessening of the discomfort from the bullae. Involution of the lesions was hastened somewhat, but at the end of three weeks of intramuscular cortisone therapy, new vesicles and bullae were still appearing. Although the patient felt much better, the clinical improvement was slight. A salve made of 100 mg. of cortisone and 240 gm. of a water-soluble base was applied liberally to all lesions twice a day. At the end of three days, 90 per cent of the lesions had involuted completely, leaving only slight erythema. The lesions which cleared included vesicles, bullae, herpes iris, and the dried hard black crusts remaining at the site of previously involuted bullae. At the end of a week almost every lesion had cleared, except for a few new vesicles. No undesirable side effects were observed.

### SUMMARY

A severe case of erythema multiforme bullosum was treated topically with cortisone. The vesicles, bullae, drying crusts, and herpes iris lesions cleared quickly and dramatically after only slight improvement with cortisone given intramuscularly.

105 North San Vicente Boulevard.

## Paroxysmal Hypertension Secondary to Malignant Pheochromocytoma

### Report of a Case and Review of the Literature

GLEN O. CROSS, M.D., FRANK W. LUSIGNAN, M.D., and  
JOHN W. PACE, M.D., *San Francisco*

**M**ALIGNANT, metastasizing pheochromocytomas producing paroxysmal hypertension have not been previously described in the medical literature.

In the case here reported the patient, first observed because of a tumor of the cervical spinal cord, was found to have paroxysmal hypertension in which a paroxysm could be precipitated by palpating a mass in the right side of the abdomen. This mass was a malignant pheochromocytoma and the spinal cord tumor was metastatic from it.

Only eight cases of malignant pheochromocytoma have been reported in the literature.<sup>1, 2, 3, 4, 5, 6, 7, 8</sup> Paroxysmal hypertension was not observed in any of these cases.

### CASE REPORT

A 47-year-old white male was admitted to the hospital with complaint of inability to move the legs, weakness of the right arm and loss of bladder and bowel control. The illness was of two months' duration.

The patient had been well until attacks of headache, dizziness and a sensation of "pounding in the chest" began. These attacks were precipitated by excitement or by lying on the right or left side.

Four months prior to hospitalization the patient began to have aching pain in the right shoulder and a month later noticed tingling and numbness of the fingers of the right hand. Two months after this the patient awoke one morning unable to move the right leg and unable to initiate micturition. In the following month complete paraplegia developed, with loss of bowel and bladder control. Ulcers formed over the sacrum.

Upon admission to hospital the patient was emaciated. There was pronounced atrophy of the right arm and of both lower extremities. Frequent spasmodic movements of the legs were observed. There were three decubitus ulcers over the sacrum. The blood pressure was 130 mm. of mercury systolic and 90 mm. diastolic.

A firm, mobile mass about 10 cm. in diameter was palpated in the right upper quadrant of the abdomen. Manipulation of the mass precipitated an attack of dizziness, headache and palpitation of the heart similar to the spontaneous attacks previously described by the patient. The blood pressure was observed while the mass was being palpated and it rose from 130 mm. of mercury systolic and 90 mm. diastolic to 245 mm. and 145 mm. respectively. In association with this change, pronounced constriction of the retinal arterioles was observed ophthalmoscopically.

In examination of the cranial nerves no abnormalities were noted. There was a zone of hypalgesia and hypesthesia on the left side of the body below the level of the fourth cervical dermatome. There was mild hyperesthesia of the body below this level. Weakness of spastic type was noted in the right arm and both legs; it was most pronounced in the right leg. Reflexes were generally hyperactive and a positive Babinski response was elicited in the right foot. There was pronounced loss of tone of the anal sphincter.

### Special Studies:

Blood cell counts were normal except that leukocytes numbered 13,450 per cu. mm. (The patient had cystitis.)

The spinal fluid was normal dynamically and chemically.



In chemical analysis of the blood the following abnormalities were noted: sodium chlorides, 103.3 mg. per 100 cc.; sugar, 66.0 mg. per 100 cc.; phosphatase, 6.0 Bodansky units.

Results of studies of the urine were within normal limits.

In an intravenous pyelogram, distortion and downward displacement of the right kidney by a large mass at its upper pole was observed.

In a film of the cervical vertebrae, erosion of the right pedicles in the lower cervical region (Figure 1) was noted.

In a Pantopaque® myelogram there was a filling defect extending upward from the first thoracic vertebra (Figure 1).

Injection of 0.5 mg. of histamine produced a rise in the blood pressure from 120 mm. of mercury systolic and 70 mm. diastolic to 225 mm. and 130 mm. respectively (see chart).

The patient was placed on a diet high in proteins, and 25 mg. of testosterone propionate was given intramuscularly daily. This restored a positive nitrogen balance. Infrared therapy to the decubitus ulcers combined with the positive

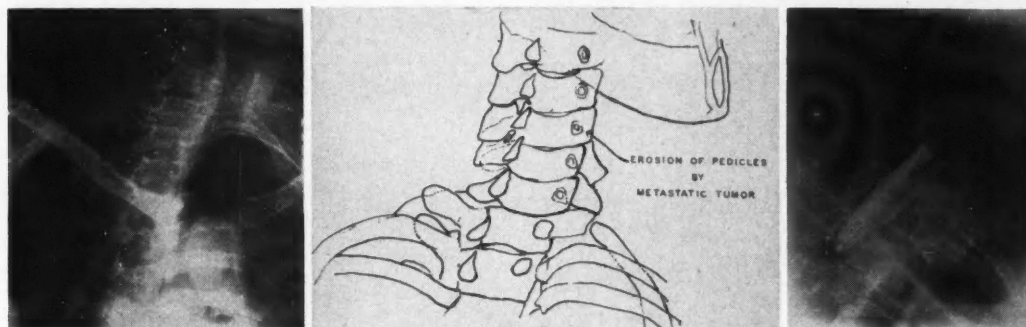
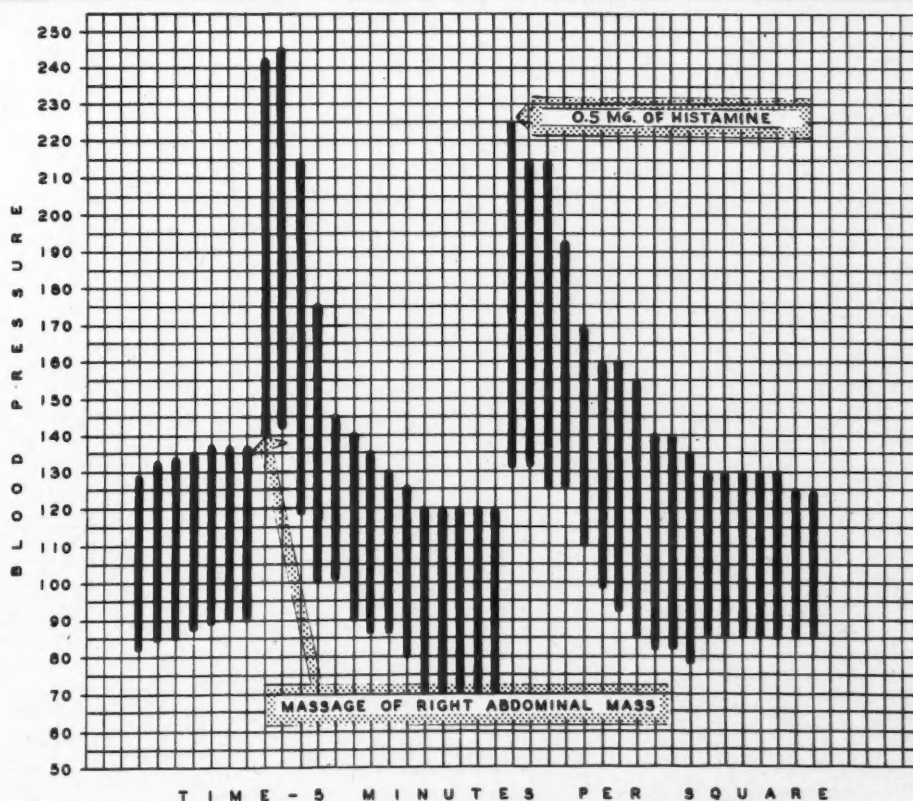


Figure 1.—Left, x-ray film of cervical vertebrae. Center, tracing of x-ray film. Right, cervical myelogram showing filling defect.



BLOOD PRESSURE GRAPH  
WITH ABDOMINAL MASSAGE AND WITH HISTAMINE INTRAVENOUSLY

nitrogen balance resulted in prompt healing. Tolserol® (mephenesin) given in doses of 2 gm. three times a day decreased the painful spasticity of the lower extremities.

When the patient's general condition had sufficiently improved, cervical laminectomy was done. The laminae were exposed from the second thoracic to the fourth cervical spine. A reddish-yellow tumor mass was observed extending between the laminae of the sixth and seventh cervical vertebrae (Figure 2, arrow). The laminae beneath the tumor were moth-eaten in appearance and soft and spongy to palpation. The tumor invaded the musculature of the neck and

extended extradurally to involve the anterior and right lateral surface of the dura. It extended downward in a thin sheet in the spinal canal and was closely adherent to the dura. Complete removal was impossible. Postoperatively the patient regained considerable motion of the legs and was able to control the anal sphincter.

One month later the abdominal tumor was removed through a right lumbar incision. It was a firm reddish-yellow mass that was well encapsulated (Figure 2). When the tumor was manipulated in the process of removal, the blood pressure rose from 120 mm. of mercury systolic and 90 mm.

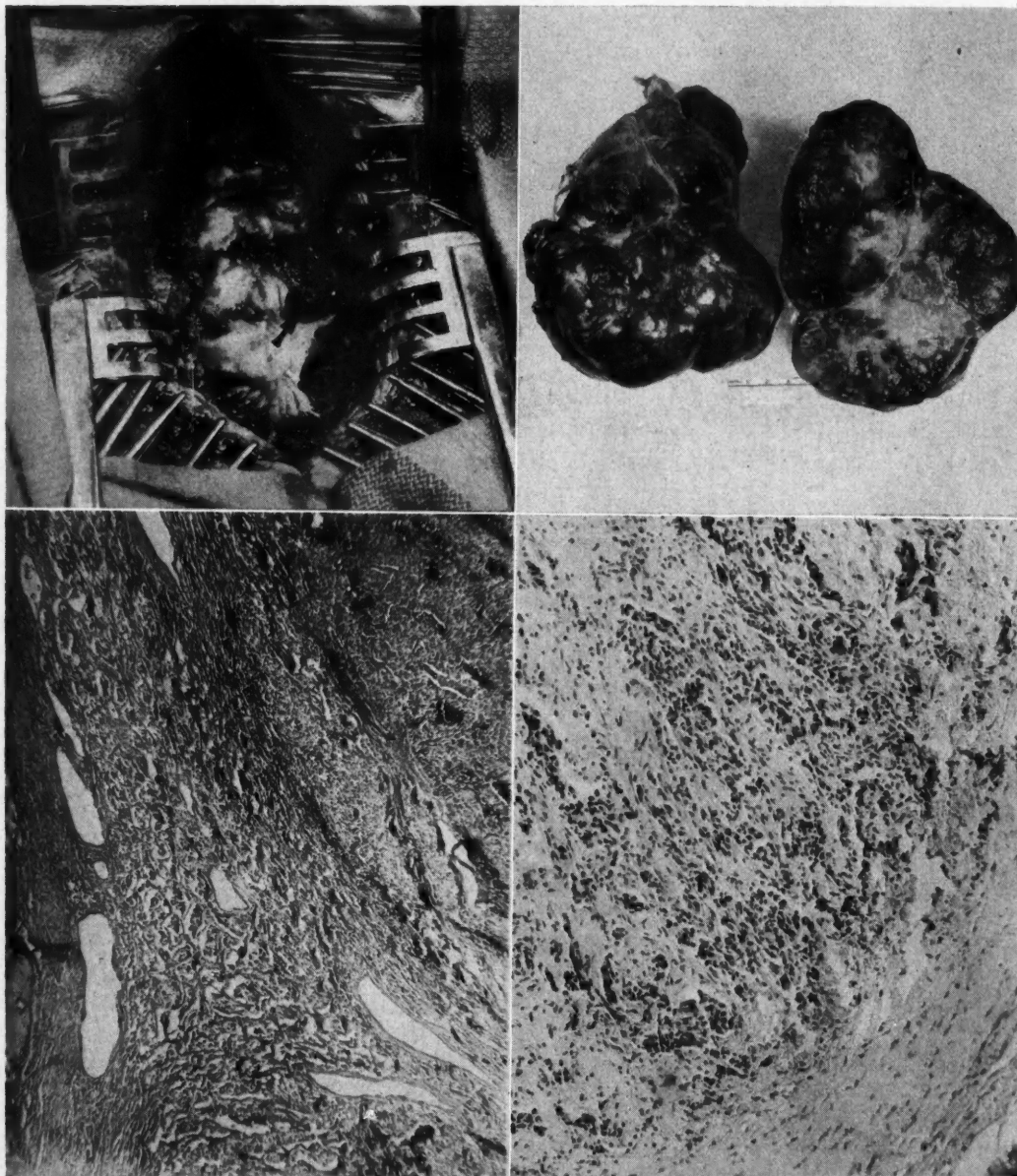


Figure 2.—Upper left, primary tumor protruding between the laminae. Upper right, primary adrenal tumor. Lower left, photomicrograph of the primary tumor (X 35). Lower right, photomicrograph of metastatic tumor (X 35).

diastolic to 260 mm. and 170 mm. respectively, and it was necessary to administer benzodioxane to lower it to a safe level until the pedicle could be ligated.

Following operation the blood pressure was maintained by giving 2.5 cc. of lipoadrenal extract intramuscularly every six hours and by continuous intravenous drip of epinephrine solution that was titrated to maintain the blood pressure at 140 mm. of mercury systolic and 90 mm. diastolic. The post-operative course was complicated by the development of a slough of tissue at the site of the intravenous epinephrine injection. This was repaired by a skin graft from the thigh. A course of deep x-ray therapy to the cervical area was given in hope of checking the growth of the remaining tumor there. There were no further attacks of hypertension following removal of the primary tumor.

#### DISCUSSION

Calkins and Howard<sup>3</sup> pointed out that there are reports of 176 cases of surgically treated pheochromocytomas in the literature and that in 15 cases the lesions were bilateral. In five of the cases of bilateral tumor the growth was malignant. None of the patients with malignant tumors had either constant or paroxysmal hypertension. McGavack and co-workers<sup>4</sup> found reports of only eight cases of malignant pheochromocytoma in the literature and noted that in none of these was hypertension observed. "It seems important," these investigators stated, "to emphasize not only its [hypertension's] complete absence in the malignant forms but also its failure to appear in slightly less than 50 per cent of the benign cases." Bauer and Belt<sup>1</sup> in a discussion of malignant pheochromocytoma mentioned the eight reported cases and concluded that paroxysmal hypertension does not occur with malignant tumors of this type. Hyman and Mencher<sup>5</sup> pointed out that pheochromocytomas have been known to develop simultaneously in two or more sites. Philips<sup>7</sup> reported observation of intrathoracic pheochromocytomas. Eisenberg and Wallerstein<sup>4</sup> commented on the concomitant occurrence of pheochromocytomas and other types of tumors and noted that the only significant association is with the neurofibromatosis. They found reports of nine cases of this combination in the literature. In the present instance the primary tumor (Figure 2) was histologically identified as a malignant pheochromocytoma. Microscopic study of the metastatic tumor (Figure 2) proved its origin from the primary adrenal tumor. Many cells with large irregular nuclei containing two or more nucleoli eccentrically placed were observed in these sections. Sinusoidal spaces were frequent. In hematoxylin-eosin stained sections the cell cytoplasm was observed to be faintly acidophilic and there were occasional bluish granules. There were some long polyhedral cells varying from 10 to 50 micra in length.

#### SUMMARY

A case of malignant pheochromocytoma giving rise to severe attacks of paroxysmal hypertension and with metastasis to the cervical spine producing a pseudo Brown-Sequard syndrome is described.

490 Post Street.

#### REFERENCES

1. Bauer, J., and Belt, E.: Paroxysmal hypertension with concomitant swelling of the thyroid, *J. Clin. Endocrinology*, 7:30, Jan. 1947.
2. Blacklock, J. W. S., Ferguson, J. W., Mack, E., Shaper, J., and Symington, J.: Pheochromocytoma, *Brit. J. Surg.*, 35:179, 1947.
3. Calkins, E., and Howard, J. E.: Bilateral familial pheochromocytoma, *J. Clin. Endocrinology*, 7:47, Jan. 1947.
4. Eisenberg, A. A., and Wallerstein, H.: Pheochromocytoma of the suprarenal medulla (paraganglioma), *Arch. Path.*, 14:818, Dec. 1932.
5. Hyman, A., and Mencher, W. H.: Pheochromocytoma, *J. Urol.*, 49:755, June 1943.
6. McGavack, T. H., Benjamin, J. W., Speer, F. D., and Klotz, S.: Malignant pheochromocytoma, *J. Clin. Endocrinology*, 2:332, May 1942.
7. Philips, B.: Intrathoracic pheochromocytoma, *Arch. Path.*, 30:916, Oct. 1940.
8. Soffer, L. J.: Diseases of the Adrenals, Lea & Febiger, Phila., Pa., 1946, p. 274.

## Injurious Effects from the Sting of the Scorpionfish, *Scorpaena guttata*

### With Report of a Case

BRUCE W. HALSTEAD, M.D., Loma Linda

ONE of the most noxious marine animals in California waters is *Scorpaena guttata* Girard, the scorpionfish. This creature is a member of the family Scorpaenidae, the rockfishes, which are commercially sold under the name of rock cod. There are three genera and about 54 species in this family which inhabit the California coast. All of them are marine forms. The scorpionfish is the only local member of this family considered to be venomous. However, all of them have formidable dorsal spines which are capable of inflicting painful wounds. Stings from *Scorpaena grandicornis* Cuv. & Val., which is found throughout the tropical Atlantic, may be fatal.<sup>6</sup> Barnhart<sup>7</sup> and Roedel<sup>8</sup> in their discussions of the marine fishes of California briefly stated that *S. guttata* is capable of inflicting severe wounds with its sharp spines and that intense pain and swelling may result. Any fisherman who has had an encounter with this fish will testify to its venomosity and to the fact that it must be handled with care. Despite the number of stings that occur yearly in California, little has been written about this matter.

#### HABITS AND DISTRIBUTION OF THE FISH

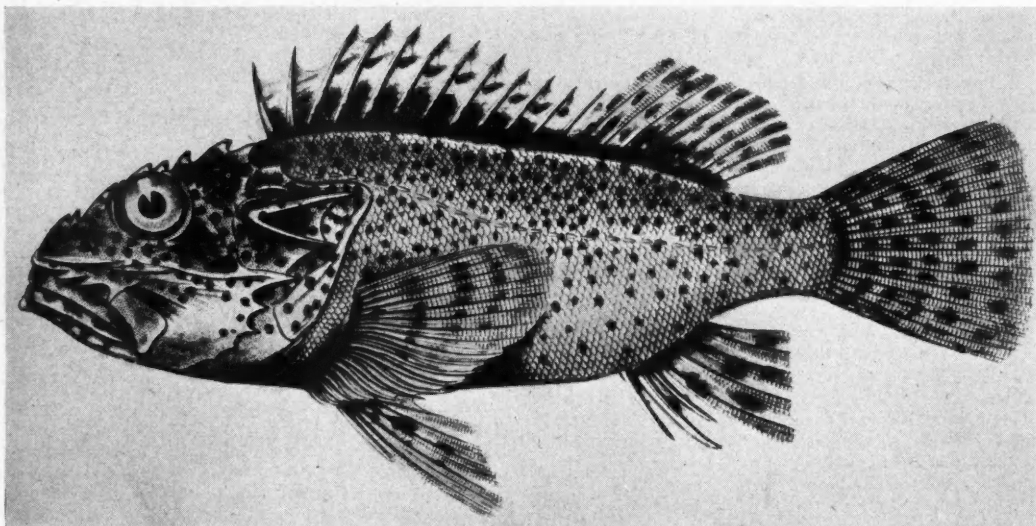
The scorpionfish ranges from central California on south to Baja California. The fish may be captured on hook and line from piers or barges most of the year, the catch usually reaching a seasonal peak during late spring and summer. It is a shallow-water bottom-dweller and is generally found in bays, along sandy beaches or rocky coast line. When the fish is removed from the water it has the defensive habit of erecting its spinous dorsal fin and flaring out its armed gill covers and pectoral, ventral and anal fins. The pectoral fin, while dangerous in appearance, is the only fin that is unarmed. Wounds are generally inflicted by the spines of the gill covers and fins when the hook is being removed from the fish.

Very little is known about the poison or structure of the venom apparatus of *Scorpaena guttata*, although it is assumed that the apparatus is similar to that of *S. porcus* Linnaeus of Europe, which has been studied in detail.<sup>4, 5, 9</sup>

The anterior halves of the dorsal spines are bilaterally grooved. Lying within each of these grooves is a long, thin strip of glandular epithelium which secretes the venom. The spines and glandular tissue are ensheathed by the interspinous membrane. The venom flows out between the layer of cells and the ensheathing membrane, which is pushed back as the spine penetrates the flesh of the victim. The resulting pressure on the glandular tissues aids in the secretion of the venom. The spines on the head of the fish are thought to be similar in structure to the dorsal spines. The action of the venom and spines is being studied and will be reported elsewhere at a later date.

From the Division of Medical Zoology, School of Tropical and Preventive Medicine, College of Medical Evangelists, Loma Linda.





California scorpionfish, *Scorpaena guttata* Girard (from Girard). The body of the fish is robust, little compressed; the mouth is very broad and large. The spines atop the head are high and bluntish; the spines anterior, superior and posterior to the eye are sharp; the preopercular spines are long and sharp, the opercular spines shorter. There are three knife-like suprascapular spines and the preorbital ridges terminate in spines. In the dorsal fin there are 12 long spines and 11 slightly shorter soft rays. The anal fin has three sharp spines, the second the longest and strongest, and five soft rays. The ventral fin, with one sharp spine and five soft rays, is thoracic in position. In color the fish is reddish, light or dark brown, irregularly mottled with purple and olive. The head, back, and sides are spotted with dark olive. There are dark bars on dorsal, caudal, pectoral, and anal fins and the ventral fin is reddish with dark spots. The fish attains a length of about 15 inches.

#### REPORT OF A CASE

A 62-year-old white male, in good health, was fishing just north of Laguna Beach, California, on Oct. 10, 1950. He captured a scorpionfish about 16 cm. long at the edge of a kelp bed in 30 feet of water. The fish was placed in a live bait box, and later while attempting to remove bait from the box the patient pricked the tip of the right index finger on one of the dorsal spines. In order to produce bleeding, it was necessary for him to suck the wound. Intense throbbing pain started almost immediately. In two or three minutes the distal phalanx became ischemic and then cyanotic. Soon the whole finger was swollen and indurated, although gradually the tip became erythematous and warm. Later the finger became numb and tactile sense diminished. Pain then began to spread to the arm and finally localized in the axilla as a dull throbbing ache. The patient complained of nausea and of a feeling described as "faintness" but did not vomit. The skin was pallid, cold and clammy. Nausea and "faintness" lasted for about two hours and then subsided.

That evening painful axillary masses developed, but the next morning the masses and the pain in the finger subsided. The color of the finger gradually returned to normal within two days, but numbness and swelling continued, and a small hematoma developed at the site of the wound. Tactile sense in the finger gradually returned to normal and after two weeks no sensory or motor impairment was evident.

Unfortunately no medical advice was available to the patient until three hours after the stinging occurred. The treatment consisted, therefore, of painting the wound with tincture of merthiolate and soaking the finger intermittently in hot water for about three hours. Hot soaks relieved the pain considerably and seemed to improve the color of the finger.

A few years earlier the patient had been bitten by a rattlesnake. He stated that the pain and other symptoms were quite similar. It is of interest also to note that the patient occasionally works with bees and is rather careless of stings, saying that they cause relatively little discomfort.

#### TREATMENT

Various crude forms of therapy have been recommended, but the best results have come from infiltrating the wound area with 2 per cent procaine in 1:10,000 solution of epinephrine hydrochloride. The sooner infiltration can be done, the better the results. Alternating hot and cold soaks are also helpful in relieving pain and seem to improve circulation in the affected area. If secondary bacterial infections occur, antibiotics may be used to advantage. Tetanus has been reported from stings produced by tropical scorpaenids,<sup>2</sup> and even though the transmission of tetanus by fishes is unlikely, the possibility should be kept in mind.

#### SUMMARY

A case of scorpion fish sting is reported. This fish is common to California waters. The fish and its venom apparatus are described and the therapy of stings discussed.

#### REFERENCES

1. Barnhart, P. S.: Marine Fishes of Southern California, Berkeley, Univ. Calif. Press, p. 60, fig. 191, 1936.
2. Bayley, H. H.: Injuries caused by scorpion fish, Trans. Roy. Soc. Trop. Med. and Hyg., 34(2):227-230, 1 fig., Aug. 1940.
3. Bottard, A.: Les Poissons Venimeux, Paris, Octave Doin, pp. 157-164, figs. 28-30, 1889.
4. Calmette, A.: Venoms, Venomous Animals and Antivenomous Serumtherapeutics, London, John Bale, Sons & Danielsson, Ltd., pp. 293-297, figs. 103-106, 1908.
5. Pawlowsky, E. N.: Gifttiere und ihre Giftigkeit, Jena, Verlag von Gustav Fischer, pp. 119-125, figs. 49-53, 57, 1927.
6. Phisalix, M.: Animaux Venimeux et Venins, Paris, Masson and Cie, 1:609, 1922.
7. Roedel, P. M.: Common Marine Fishes of California, Calif. Fish and Game, Fish Bull. No. 68, p. 110, fig. 81, 1948.
8. Tuma, V.: Travail de l'Institut d'histologie et d'embryologie à la Faculté de médecine de l'université Charles à Prague. (Reprint), 2 pp., 3 figs., March 1927.



### Malignant Teratoma of the Testicle In an Infant Four Months of Age

EARL J. BOEHME, M.D., RICHARD O. BAGLEY, M.D., and  
ALBERT F. PUMPHREY, M.D., Los Angeles

**M**ALIGNANT testicular tumors are relatively rare. They comprise about 0.5 per cent of all tumors. Ormond and Prince<sup>4</sup> found records of only 21 cases in 319,000 patients treated at Henry Ford Hospital since 1915. To 1928 the Mayo Clinic had reported only 102 cases.

The great majority of such tumors occur in patients between 30 and 50 years of age, and they are extremely rare in children. In the Henry Ford Hospital series none of the patients was under ten years of age. Gilbert is cited by Matassarian<sup>2</sup> as having found record of only 131 cases in patients under the age of 15 in reports of 5,500 cases of tumor of the testicle in the years 1803 to 1942. In the 131 cases, the tumor was dermoid in 42 instances and teratoma in 89. Only 17 of the 89 teratomas were in children one year of age or under. Recently there have been case reports of malignant tumor of the testicle in infants of five,<sup>1</sup> seven, and eight<sup>3</sup> months of age.

Teratomas are usually unilateral and arise from the rete testis. That they are frequently associated with cryptorchism is evidenced by the fact that 12 per cent of all testicular tumors occur in undescended testes while only 0.1 to 0.2 per cent of normal males have undescended testes. Teratomas grow rapidly and are highly malignant even though they do not attain a large size. The chief symptom in children is enlargement of the testicle. Since the tunica albuginea limits the growth, the smooth oval shape of an enlarged testicle is retained until late in the disease. Gonadotropic prolan is liberated in the urine and is present in diagnostic amounts in approximately 85 per cent of cases of testicular tumor.

The differential diagnosis must include hydrocele, hematocele, syphilis, tuberculosis, and benign tumor. It is important not to dismiss all scrotal swellings occurring in infants as simple hydroceles. Careful transillumination is always indicated. In one case an attempt was made to aspirate the tumor on the assumption it was a tightly distended hydrocele, although by careful examination a solid tumor can be differentiated from one containing fluid. In this regard it is interesting to note that there is a small hydrocele accompanying 15 to 25 per cent of all malignant testicular tumors. Occasionally aspiration of the fluid may be necessary for accurate palpation of the testicle. Benign tumors such as fibromas, adenomas, leiomyomas, and interstitial-cell tumors are even more rare than malignant tumors and probably cannot be differentiated clinically. The danger of malignancy in obscure, persistent testicular enlargements makes orchidectomy mandatory in such cases.

As in all malignancies, early diagnosis and prompt treatment are of paramount importance. That cures are obtained in only 15 per cent of cases by simple orchidectomy is ample proof that usually extension beyond the testicle has occurred before the diagnosis is made. When there is evidence of metastases, the prognosis is generally hopeless. Most investigators report best results with simple orchidectomy followed by intensive roentgen therapy. However, in infants the benefits that might be derived from irradiation must be carefully weighed in view of the consequences certain to follow intensive therapy. Despite precautionary measures the remaining testicle is certain to be damaged. Also, the adjacent epiphyses of the pelvis and upper femur will be considerably affected. Rather than produce a disturbance of bone growth, and perhaps castration, irradiation was not used in the case here reported.



Figure 1.—Large mass in scrotum before operation.

#### CASE REPORT

A four-month-old Mexican male was observed in the Kern General Hospital on October 24, 1947. The child was apparently normal at birth. When he was two months of age the mother noticed that the right testicle was swollen and slightly red. It continued to increase in size and a physician was consulted.

#### Physical examination:

Upon physical examination, the right testicle was observed to be enlarged to 7x5x3 cm. It was smooth, non-tender, of rather firm consistency, and was not translucent. There was no involvement of scrotum and the tumor was freely movable. The left testicle was normal. Results of routine blood, urine and serologic tests were within normal limits. A roentgenogram of the chest was normal. Unfortunately, an assay of the urinary prolan could not be carried out.

#### Operation:

On October 27 right orchidectomy was done with ligation transection of the spermatic cord at the level of the internal abdominal ring before the testicle was freed from the scrotum. The postoperative course was uneventful and the wound healed normally. The patient was discharged on the ninth postoperative day in excellent condition. At follow-up examination six months later there was no evidence of recurrence, and the growth and development of the infant was normal.

#### Pathologic report:

The specimen was an oval mass, firm in consistency and measuring 6.5x5x3.5 cm. On cut section the tissue was homogeneous and a pale yellow color. There was a 12 mm. cyst filled with clear fluid within this substance. On microscopic examination the normal structure was observed to be com-

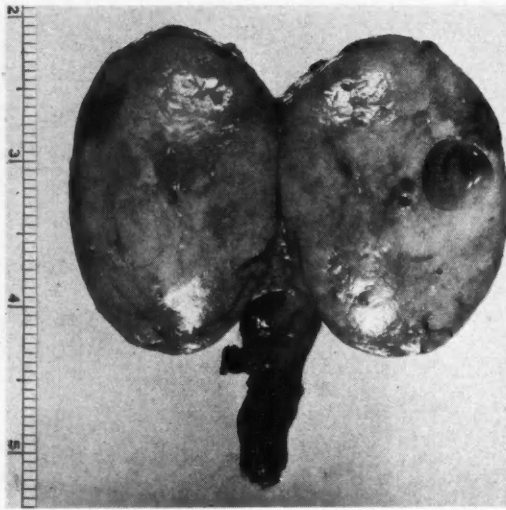


Figure 2.—Sagittal section of tumor which proved to be malignant teratoma.

pletely altered by proliferating glands and nests of cells with large oval nuclei. There were numerous mitotic figures present. The tumor cells were frequently interrupted by fibrosis. The capsule was thickened and fibrosed. The diagnosis was malignant teratoma of the testicle.

#### SUMMARY

The occurrence of malignant teratoma of the testicle in an infant four months of age is reported. The patient is believed to be the youngest of authenticated record to have this disease. The importance of careful examination of all hydroceles in infants to rule out solid tumors is emphasized. 1033 Gayley Avenue.

#### REFERENCES

1. Macera, J. M., et al.: Congenital tumor of testicle in five-month-old boy, *Arch. Argent. de Pediat.*, 6:807-814, June 1935.
2. Matassarian, F. W.: Embryonal adenocarcinoma of testicle in infant: case report, *J. Urol.*, 52:575-577, Dec. 1944.
3. Meltzer, A., and Bloom, B.: Malignant testicular neoplasm in infancy, *New England J. Med.*, 237:513-514, Oct. 2, 1947.
4. Ormond, J. K., and Prince, C. L.: Malignant tumors of testicle, *J. Urol.*, 45:685-691, May 1, 1941.

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## EDITORIALS

### Physical Therapy

In recent years the California Medical Association has aligned itself with the graduates of approved colleges of physical therapy in an attempt to establish a system of registration for graduates who confine their activities to work carried out under the supervision and direction of physicians. During this same time another group has been working for legislation which would set up a state licensing board for those who would practice various forms of physical therapy on the public at large under no professional supervision.

In the current session of the Legislature these two movements have clashed head-on.

In order to prepare itself for this collision the Legislative Committee of the Association started gathering evidence early in 1950. It was primarily concerned with the training that the unsupervised physical therapists received, the manner in which they practiced and the ethical standards, if any, which they maintained. The answers were secured and have been presented to the Legislature.

An employee of the Association was sent to a "physical therapy school" claimed by the other group to be "outstanding"—a three-room establishment above a Berkeley liquor store. There, for six months—and a fee of \$300—he studied "physical therapy." His findings were given to the Legislature in a 28-page affidavit, complete with photographic evidence of examination papers, diploma, etc. In brief, his conclusions may be summarized about as follows:

1. Any student who paid the \$300 tuition was assured of graduation.

2. Examinations were a farce; when he, intentionally or otherwise, missed examination questions, the correct answers were written in by the instructor and a grade of 100 per cent given him.

3. Special emphasis was laid on the technique of administering colonics; the instructor was a woman who claimed to have started in this field twelve years ago, her first patient being her ailing husband. She later admitted that the patient had died after two years.

4. Students of the school were instructed in how to build up a practice by starting in on neurotics, arthritics and others in home visits in evening hours; this start, they were told, would permit them to hold down a regular job and gradually build a large enough clientele to warrant setting up a "physical therapy" establishment.

5. Graduates of the school were eligible for membership—for an additional \$33—in the statewide organization seeking a licensing board. This organization, presumably for want of funds, has permitted its bulletin to be subsidized by equipment manufacturers and others who would teach the members how to "get on easy street."

6. The climax-capper was eligibility of organization members to take a course—\$200 tuition plus \$5 for "student notes"—in "thalamotherapy," a system for treating cancer and other diseases by having the patient wear goggles in which different-colored glass lenses (with no optical qualities) were inserted. This two-day course was taught by a chiropractor who claimed unusual success in "bloodless

surgery" and was sponsored by a former president of the statewide organization.

That is only a part of the story but probably enough to give an idea as to the professional and ethical standards of this self-named group of "physical therapists." The legislative committee which heard the two opposing bills voted unerringly in favor of the C.M.A.-sponsored measure. Within a week the Assembly confirmed the committee's findings by a favorable vote of 61 to 5 for the bill.

At this writing the measure has not come before the State Senate. However, unless there is a startling reversal, favorable Senate action may be anticipated. If this occurs and is followed by Governor Warren's signature, the practice of physical therapy will be classified under a registration system which will

separate the well-trained physical therapists from the practitioners who want to open offices and practice on the public without diagnosis or examination.

It is hoped that favorable action on this measure will be gained. Then, and only then, can we count upon the maintenance of high professional standards in a practice which is, and wants to remain, an adjunct to the practice of medicine, under competent medical supervision and instruction. Those who want to open a business establishment and "get on easy street" would be debarred from this legitimate practice as unqualified; there is ample reason to believe that they should be debarred from all practice because of their lack of training, their ignorance of examination or diagnosis and their avidity, in view of their limited knowledge, to treat all comers. This is quackery at its worst.




### Prescribed Reading

Under authority of the C.M.A. Council, the Association's office is now issuing a monthly news letter. Under the title *Rx Reading* it aims to bring to the members each month a brief digest of events and happenings which should be of interest to all physicians.

Legislation, economic developments, governmental policies—anything which may affect the physician in his practice—are in the field of this new publication. *Rx Reading* is planned as a brief review of

current events in a readable form to save the time of the busy physician.

Members of the Association are urged to give this news letter a few minutes each month, to pick up the gleanings from a large number of sources on items which have a real meaning for some, if not all, physicians. Suggested news items are always welcome; and criticisms, preferably constructive, will be paid full heed. *Rx Reading* is your publication.





# CALIFORNIA MEDICAL ASSOCIATION

DONALD CASS, M.D. ....	President	SIDNEY J. SHIPMAN, M.D. ....	Council Chairman
H. GORDON MACLEAN, M.D. ....	President-Elect	ALBERT C. DANIELS, M.D. ....	Secretary-Treasurer
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JOHN HUNTON, Executive Secretary.....		General Office, 450 Sutter Street, San Francisco 8	
ED CLANCY, Field Secretary.....		Southern California Office, 417 South Hill Street, Los Angeles 13. Phone: MAdison 8863	

## NOTICES AND REPORTS

### Council Meeting Minutes

*Tentative Draft: Minutes of the 378th Meeting of the Council of the California Medical Association, San Francisco, March 17, 1951.*

The meeting was called to order by Chairman Shipman in Room 261 of the St. Francis Hotel, San Francisco, at 9:30 a.m., Saturday, March 17, 1951.

#### Roll Call:

Present were President Cass, President-Elect MacLean, Speaker Alesen, Vice-Speaker Charnock, Councilors Ball, Crane, Henderson, Dau, Ray, Montgomery, Lum, Pollock, West, Thompson, Shipman and Bailey, Secretary Daniels and Editor Wilbur. A quorum present and acting.

Absent for cause were Councilors Green, Heron and Frees.

Present by invitation during all or a part of the meeting were Dr. John W. Cline, president-elect of the American Medical Association; Dr. George F. Lull, Secretary of the American Medical Association; Dr. Dwight H. Murray, legislative chairman; Dr. Malcolm Merrill of the State Department of Public Health; Dr. Garnett Cheney; Dr. John R. Upton, chairman of the Blood Bank Commission; Dr. L. H. Garland; Executive Secretary Hunton, Assistant Executive Secretary Thomas, Legal Counsel Hassard, Field Secretary Clancy, Messrs. Bowman and Paolini of California Physicians' Service, Messrs. Whitaker, Jr., and Dorais of public relations counsel, and county executive secretaries Waterson of Alameda-Contra Costa, Wood of San Mateo, Gillette of Fresno, Cochems of Los Angeles, and Tobitt of Orange. Others present for temporary periods are referred to in these minutes.

#### 1. Minutes for Approval:

(a) Minutes of the 377th Council meeting, held January 27, 1951, were approved.

(b) Minutes of the 225th Executive Committee meeting, held February 15, 1951, were approved.

#### 2. Membership:

(a) A report of membership as of March 16, 1951, was received and ordered filed.

(b) On motion duly made and seconded, members who had become delinquent for 1950 dues were voted reinstatement as active members.

(c) On motion duly made and seconded in each instance, 15 applicants were elected to Retired Membership. These were:

William Barnhart, Harry D. Earl, Frank W. Haynes, R. G. Henderson, Clarence C. Hopkirk, Fred W. Kuhlmann, Albert A. Peterson, Nina R. Smith and Earl H. Welcome, Los Angeles County; Roscoe L. Clark and Frank Ohannesson, Sacramento County; Algernon S. Garnett and Xenophon Olsen, San Bernardino County; Jay Jacobs, San Francisco County; Harry Carlos De Vighne, Santa Barbara County.

(d) On motion duly made and seconded in each instance, six applicants were elected to Life Membership. These were:

John McAuley, Joseph Robinson, John Wehrly, Orange County; Thomas O. Burger, San Diego County; P. M. Savage, San Bernardino County; Minerva Goodman, San Joaquin County.

(e) On motion duly made and seconded in each instance, 11 applicants were elected to Associate Membership. These were:

Robert L. Kesterson and Frederick L. Kreutzer, Alameda County; Jim H. Lecky and Ivan A. May, Fresno County; Mabel Geddes and John H. Linson, Orange County; M. Hugo Childress, Ernest Jawetz, Isadore Kamin, Paul H. Leach and Max H. Teitler, San Francisco County.

(f) On motion duly made and seconded in each instance, reduction of dues was voted for 29 applicants because of illness or postgraduate study.

### 3. Financial:

(a) A report of bank balances as of March 16, 1951, was received and ordered filed.

(b) Dr. Lum, chairman of the Auditing Committee, reported on investigations into the possibility of investing funds in other types of securities than U. S. Treasury obligations. The advice of various investment counsellors was that the Association retain its investments in their present state and Dr. Lum so recommended. On motion duly made and seconded, this recommendation was approved.

(c) A letter from New Mexico Physicians' Service, outlining the position of that organization in its program of repayment of the Association's loan, was read and ordered filed.

(d) Dr. Charnock, chairman of a special committee on employees' annuities, recommended that male employees who had completed five years of employment be covered by life insurance, as in the case of one employee already so covered. On motion duly made and seconded, it was voted to approve such a policy.

### 4. State Department of Public Health:

(a) Dr. Malcolm Merrill of the State Department of Public Health answered several questions on the proposed reestablishment of the Emergency Maternal and Infant Care program, pointing out that it was felt that such a program was not needed at this time and if it should become necessary, several changes should be made from the World War II program.

(b) Dr. Cass reported on receipt of a request for a \$5,000 contribution to purchase a mobile medical unit to serve migrant agricultural workers in the San Joaquin Valley. He stated he had referred this to Councilor Dau for study.

(c) A request for an appropriation to help finance a study of medical technicians was read and it was regularly moved, seconded and voted to decline this request.

### 5. Presentation of Dr. George F. Lull:

The Chairman presented to the Council Dr. George F. Lull of Chicago, Secretary and General Manager of the American Medical Association, who addressed the Council on timely topics.

### 6. Committee on Emergency Medical Service:

The Chairman announced receipt of a report from Dr. Justin J. Stein, chairman of the Committee on Emergency Medical Service, and it was regularly moved, seconded and voted to send a copy of the report to each Councilor.

### 7. Public Policy and Legislation:

Dr. Dwight H. Murray, legislative chairman, and Mr. Ben H. Read, executive secretary of the Public Health League of California, discussed several pieces of pending legislation. Opposition was expressed to a measure which would permit temporary licensure for physicians in emergencies.

Discussion was held on a pending measure which would require the signing of an allegiance oath by those holding professional licenses. On receipt of word from the author of the measure that he did not intend to press for its passage, it was agreed to take no action on this proposal. The author also urged caution on those members who might be solicited to join or make financial contributions to organizations formed outside the profession for combating this measure, on the ground that some such funds might be diverted into other channels.

A request for review of certain provisions of Public Law 734, adopted by the Congress, relating to optometrists certifying as to blindness, was moved, seconded and voted referred to the American Medical Association.

### 8. Rabies Control:

Dr. Garnett Cheney, chairman of a special committee on rabies control, reported for his committee, recommending mandatory vaccination for dogs not kept on leash. On motion duly made and seconded, it was voted to approve this report, amended to include those dogs kept on leash.

A brief report was also given by Dr. Cheney on "Q" fever.

### 9. 1951 House of Delegates:

Dr. Lewis A. Alesen, Speaker of the House of Delegates, outlined a course of procedure for the 1951 meeting, to accommodate the consideration of a proposed new Constitution and prospective By-Laws to accompany same. On motion duly made and seconded, his proposed procedure was voted approval.

Dr. Alesen also recommended that the Speaker's ruling be that two proposed constitutional amendments, to the new Constitution, be acted upon as follows if the proposed Constitution is adopted: The first amendment requiring county society assessment of penalties for non-payment of assessments would be acted upon. The second, proposing new distribution of councilor districts, is so inherently faulty that its passage would make the organization inoperable, hence this would be ruled as unacceptable and not voted on. The third and last to be considered is to amend the present Constitution by changing the method of electing district councilors. This will die automatically if the new Constitution is adopted, otherwise it will be brought up to a vote. On motion duly made and seconded, the Council voted approval of these proposed rulings.

It was regularly moved, seconded and voted that the members of the Executive Committee be constituted a committee to suggest several technical amendments to the By-Laws as tentatively submitted to the House of Delegates and printed in the official journal. Upon its report on such changes, it was regularly moved, seconded and voted that such changes be incorporated in the tentative By-Laws as previously printed.

#### 10. *California Physicians' Service:*

Mr. William M. Bowman, executive director of California Physicians' Service, reported that members of the C.P.S. Board of Trustees were appearing before the county medical societies to explain the changes in contracts and operations proposed by the board within the past year. He also reported that no beneficiary groups had been signed under the new proposed annual income ceiling.

#### 11. *California Adoption Laws:*

Dr. Phillip Arnot reported that many physicians are confused over their obligations under state laws governing the adoption of children. It was regularly moved, seconded and voted that legal counsel prepare a statement on this subject for distribution to all Association members.

#### 12. *Legal Department:*

Mr. Hassard reported that a case in which the Association has taken an interest, involving the obligations of physicians who are called upon for opinion evidence without their prior consent or arrangements for their compensation, is now before the State Supreme Court. He also reported on several other suits now pending in the courts.

#### 13. *Public Relations:*

Mr. Clem Whitaker Jr. asked that a proposed endorsement drive, tentatively proposed by his office, be held in abeyance at this time. He also proposed that the presidential inaugural address of the 1951 Annual Session be broadcast, at a cost of not more than \$3,000. On motion duly made and seconded, this broadcast was approved, subject to final approval by the Executive Committee.

Dr. Dwight L. Wilbur, chairman of a special committee to investigate the use of radio by the Association, reported that the committee recommended that no action be taken toward establishing a radio program at this time unless the Council or House of Delegates voted greatly in favor of such a step. He recommended that further study be given to the possibilities of utilizing radio broadcasts consisting of scientific commentaries. On motion duly made and seconded, this recommendation was approved and the committee authorized to continue its investigation of this suggestion.

#### 14. *Committee on Public Health and Public Agencies:*

Dr. C. V. Thompson reported on meetings of the Hospital Advisory Council to the State Department of Public Health, which has invited him to audit its discussions as a representative of the Association.

Dr. Francis E. West reported on the decision of the advisory committee on a proposed morbidity study to request an appropriation of \$30,000 to carry on an investigation into possible methods of making such a study. If such a study is decided upon, the National Institute of Health would provide \$60,000 to \$75,000 the first year and \$90,000 the second year for making the study, using Santa Clara County as the first test area. On motion duly made and seconded, it was voted that the present investigations be continued.

#### 15. *Advisory Planning Committee:*

Mr. Hunton recommended for the committee that Mr. Robert L. Thomas, newly appointed assistant executive secretary, be appointed a member of the committee and it was regularly moved, seconded and voted to make this appointment.

It was regularly moved, seconded and voted to express to Mr. William P. Wheeler, former assistant executive secretary, the appreciation of the Council for his services, especially in those instances where his duties were beyond the regular call.

#### 16. *1951 Annual Session:*

It was regularly moved, seconded and voted that a reception be given for the President of the Association on May 14, 1951, and that invitations be extended to officers and Councilors, guest speakers, officers of scientific sections having invited guests speakers and the presidents of the county societies.

Dr. Cass asked and received approval for the Los Angeles County Medical Association to invite the members of the association to their home for needy physicians during the Annual Session, and also to solicit funds for the Los Angeles County Physicians' Aid Association.

#### 17. *Blood Bank Commission:*

A report by Dr. John Upton for the Blood Bank Commission was given. It was duly moved, seconded and carried to sponsor a clearing house for the various banks. This is to be set up as a separate corporation.

#### 18. *Time and Place of Next Meeting:*

It was agreed that the next meeting of the Council be held in Los Angeles on Saturday, May 12, 1951.

#### *Adjournment:*

There being no further business to come before the meeting, it was adjourned at 4:20 p.m.

SIDNEY J. SHIPMAN, M.D., *Chairman*  
ALBERT C. DANIELS, M.D., *Secretary*

## In Memoriam

BUCKMANN, HENRY D. Died in Martinez, March 7, 1951, aged 57. Graduate of Cooper Medical College, San Francisco, 1908. Licensed in California in 1910. Dr. Buckmann was a member of the Alameda-Contra Costa Medical Association, the California Medical Association, and the American Medical Association. ♦

HOUSTON, ALBERT J. Died in Beverly Hills, March 28, 1951, aged 77, of a stroke. Graduate of Cooper Medical College, San Francisco, 1898. Licensed in California in 1903. Dr. Houston was a retired member of the San Francisco Medical Society, and the California Medical Association. ♦

JACOBS, JAY. Died in San Francisco, March 18, 1951, aged 62, of a heart ailment. Graduate of Cooper Medical College, San Francisco, 1911. Licensed in California in 1911. Dr. Jacobs was a member of the San Francisco Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

LARTIGAU, AUGUST J. Died in Santa Barbara, March 15, 1951, aged 79. Graduate of the University of California Medical School, Berkeley-San Francisco, 1896. Licensed in California in 1896. Dr. Lartigau was a retired member of the San Francisco Medical Society, the California Medical Association, and an Associate Fellow of the American Medical Association. ♦

MORTON, ANDREW W. Died in San Francisco, March 26, 1951, aged 84, of a coronary. Graduate of the University of Tennessee College of Medicine, Memphis, 1892. Licensed in California in 1898. Dr. Morton was a member of the San Francisco Medical Society, the California Medical Association, and a Fellow of the American Medical Association. ♦

YENGST, HENRY L. Died February 27, 1951, aged 61. Graduate of Chicago College of Medicine and Surgery, 1915. Licensed in California in 1941. Dr. Yengst was a member of the Los Angeles County Medical Association, the California Medical Association, and the American Medical Association.



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# Questions and Answers about C. P. S.

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**Question:** Under the new two-visit deductible contract, can the annual \$10 and \$25 laboratory and x-ray provisions be used for the same ailments for which they were used in a previous year?

**Answer:** Yes, these benefits are provided each year for patients who have two-visit deductible medical coverage—and they may be used for the same ailments each year, if necessary. It is well to remember, however, that the \$25 x-ray provision is for *illness*, and that the surgical contract provides up to \$25 each year for x-rays performed outside the hospital for *accidents*. (The term "contract year" means one year from the date the member joined C.P.S. under the new contract, or one year from the date his contract was converted from the old to the new contract.)

**Question:** How can I arrange for my office secretary to receive instruction on C.P.S. billing procedures?

**Answer:** The C.P.S. Physician Relations Department exists for the purpose of giving instruction to secretaries, nurses and receptionists of C.P.S. physician members on the procedures which should be followed in handling the clerical work connected with treatment of C.P.S. patients. The department performs its duties in various ways, principally by giving individual instruction to these medical assistants or by holding "group instruction" classes in a locality when arrangements can be made for bringing a number of the secretaries, etc., together for such a meeting. To arrange for this instruction, physician members need only to contact the Physician Relations Department in San Francisco or Los Angeles, or to contact the nearest C.P.S. district office. Answers to immediate problems which may arise may also be obtained by telephone.

**Question:** May osteopaths become physician members of California Physicians' Service?

**Answer:** No. Physician membership in C.P.S. is limited to Doctors of Medicine who are licensed as physicians and surgeons in the State of California.

**Question:** Under the new two-visit deductible contract are there any occasions when C.P.S. pays for medical care on the first visit to the doctor?

**Answer:** Yes, but only in cases of accidents, such as sprains and contusions which may require medical attention. It should be kept in mind, as well, that this benefit (medical service from the first visit in accident cases) applies only on the medical portion of the beneficiary's contract. It does not apply to patients who have only surgical and hospital coverage, nor to those who have surgical, hospital and medical-while-hospitalized benefits. To be eligible

for this feature of C.P.S. protection, therefore, the patient must have two-visit-deductible medical coverage.

**Question:** Does C.P.S. reimburse its beneficiary members for physician and hospital bills they may pay outside California?

**Answer:** Yes, C.P.S. benefits apply anywhere in the world if the beneficiary member is traveling outside California, providing services are rendered by licensed doctors and hospitals. In such cases, the member pays the bill and then requests reimbursement from C.P.S. by submitting his receipted bill with his request. If the services are a benefit of his contract, he is reimbursed in the same amount which would be paid to member physicians and hospitals in California for the same services. Requests for reimbursement must be made within 90 days from the date service was received.

**Question:** What is the procedure in rendering emergency care to a veteran?

**Answer:** Emergency care should be rendered with the understanding between doctor and patient that the Veterans Administration will pay the charges involved if the condition being treated has been previously adjudicated as service-connected by the VA. Treatment for a non-service-connected disability must be at the veteran's expense, whether emergent or not.

A Request for Authority to Treat (Form 52) should be completed and mailed to the C.P.S. Veterans Department immediately after the first visit. If the veteran is unconscious, or unable to complete his section of the form, a note of explanation should be attached.

**Question:** How may prescription blanks be obtained for veterans?

**Answer:** By asking for them from any member pharmacy of the California Pharmaceutical Association which has agreed to fill veterans' prescriptions. Lists of member pharmacies are available through either the Northern (San Francisco) or Southern (Los Angeles) branches of the Association.

## ATTENTION: C.P.S. Physicians

If you change your office address, C.P.S. requests that you give notification of the fact, and your new office address, to C.P.S. headquarters in San Francisco or Los Angeles or to the nearest C.P.S. district office. In this way, you will assure receipt of mailings of important C.P.S. informational material without unnecessary delay.

# NEWS and NOTES

NATIONAL • STATE • COUNTY

## LOS ANGELES

U. S. Public Health Service grants totaling \$19,384 for **medical research projects** at University of California at Los Angeles were accepted last month by the board of regents. Largest of the grants was \$7,275 for studies by Dr. William G. Clark of a new drug, sympathin. Others were: \$4,998 for research by Dr. S. Roberts on endocrine secretions, \$4,825 for amino acid studies by Dr. Max S. Dunn, \$1,206 for study of leprosy by Dr. Charles Carpenter, and \$1,080 for work by Dr. Donald S. Howard on health training.

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Dr. Walter L. Palmer of Chicago was guest speaker at the March meeting of the **Southern California Society of Gastroenterology** in Los Angeles. The recently organized group, which now has about 35 members, has scheduled meetings for alternate months in the auditorium of the Los Angeles County Medical Association. The society was formed in 1950 with a nucleus of members of the American Gastroenterological Association for the purpose of fostering gastroenterology as a specialty. **Present officers** are Dr. William C. Boeck, president; Dr. Grant Harold Lanphere, vice-president; and Dr. Harold Lincoln Thompson, secretary-treasurer. The society has asked physicians interested in joining to make application to the secretary, 2202 West Third Street, Los Angeles.

\* \* \*

Dr. Paul A. Quaintance recently was elected president of the **Los Angeles Tuberculosis and Health Association**. Dr. Joseph L. Robinson was elected a vice-president, and Dr. Clarence Morley Sellery and Dr. Thomas H. Sternberg were elected to the board of directors.

## MARIN

Carrying out a plan proposed by a committee of the **Marin County Medical Society**, the county board of supervisors recently appointed a county physician and three assistants to serve the medical needs of county patients. Dr. George V. Oliva of San Anselmo was named county physician. The three assistants, each to be responsible for medical care of county patients in a prescribed area, are Dr. R. Weseman of Novato, Dr. R. B. Hartman of Mill Valley, and Dr. Gordon J. Plattes of Point Reyes. Dr. Oliva will be administrative officer and will also serve as physician for the patients at the county farm.

## MERCED

Dr. W. H. Dewhirst, Jr., of Merced was elected president of the **Merced County Tuberculosis and Health Association** at the organization's annual meeting in March. He succeeds Dr. Willis M. Basye, who has been president for the past two years.

## SAN FRANCISCO

Dr. Stacy R. Mettier was named president-elect of the San Francisco Medical Society at a special meeting held in March. At the same time, Dr. Herbert C. Moffitt, Jr., was elected to the newly-created post of assistant secretary-treasurer. Dr. Mettier will succeed Dr. Garnett Cheney as president in 1952.

## SONOMA

More than 100 physicians from ten counties attended a two-day **postgraduate training seminar** recently held in Santa Rosa under the sponsorship of the Sonoma County Medical Society and the Committee on Postgraduate Activities of the California Medical Association. Lecturers were members of the faculty of the University of California School of Medicine.

Physicians from Marin, Napa, Lake, Mendocino, Humboldt, Del Norte, Solano, Trinity and Contra Costa counties, as well as from Sonoma, attended the meeting.

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The **Sonoma County Hospital**, which in 1950 was omitted from the Resident and Internship Registry of the American Medical Association because the necessity of applying for inclusion was overlooked, has again been approved for residency in general practice, according to Dr. Henry D. Stailey, medical director of the hospital. Dr. Stailey said that he had received notification of approval from the A.M.A. Council on Medical Education and Hospitals.

## GENERAL

May 15 is the last day for filing **application for admission** as a first-year student in the new **Medical School of the University of California at Los Angeles** which will open with its first class of students next September 19. Twenty-five applicants will be accepted, according to Dr. Stafford Warren, dean of the new school.

Now in temporary quarters, the school will in addition make use of teaching materials provided by the Harbor General Hospital in Torrance, and the Veterans Administration hospitals at Sawtelle and Long Beach. It is planned ultimately to build a teaching hospital on the Los Angeles campus.

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Dr. Ellis Sox, chief of the Division of Local Health Service, California State Department of Public Health, was elected president of the Association of State and Territorial Directors of Local Health Service at the recent annual meeting of the organization in Indianapolis.

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The 33rd annual meeting of the **American Radium Society** will be held in Atlantic City, June 7, 8, and 9. Dr. Hugh F. Hare, of the Lahey Clinic in Boston, the society's president-elect, said that the three-day meeting this year would feature a well-rounded symposium on tumors of the head and neck.

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**Phi Beta Pi medical fraternity** alumni will hold a luncheon meeting, Tuesday, May 15, at 12:15, in the Clark Hotel, Los Angeles. All members of the fraternity are invited to attend the meeting, which is being sponsored by the alumni living in Southern California. Reservations for the luncheon (\$2, including tax and tip) may be made with Forrest N. Anderson, M.D., 1417 Huston Street, Van Nuys.

\* \* \*

The 50th annual meeting of the **American Proctologic Society** will be held June 6-9 at the Marlborough-Blenheim Hotel, Atlantic City, New Jersey. Additional information may

be obtained from the secretary of the organization, Wendell Green, M.D., 201 Professional Building, 1838 Parkwood Avenue, Toledo 2, Ohio.

\* \* \*

**The Western Association of Industrial Physicians and Surgeons** will hold its tenth annual meeting Saturday, May 12, in the Biltmore Hotel, Los Angeles. The program follows:

#### MORNING

- 8:30-9:00—Greetings from the president. Brief report of board of directors' meeting. Secretary and treasurer's report.
- 9:00-9:20—Effective Treatment of Mass Injuries—Carroll J. Bellis, M.D., Long Beach. Moderator: Homer S. Elmquist, M.D., Los Angeles. Ten-minute discussion period.
- 9:30-9:50—The Place of Cortisone and ACTH in the Treatment of Rheumatic Disease—Edward W. Boland, M.D., Los Angeles. Moderator: Forrest E. Rieke, M.D., Portland, Oregon. Ten-minute discussion period.
- 10:00-11:00—Heart Disease and Employment:
1. Present concepts of the coronary disease process—Leon Lewis, M.D., Berkeley.
  2. Evaluation of the cardiac patient for employment—Eugene Levine, M.D., Los Angeles.
  3. Practical problems in placement of the cardiac—Robert Gray, Director of Industrial Relations Section, California Institute of Technology, Pasadena.
  4. Workmen's compensation and cardiac disease—Douglass A. Campbell, Referee, Industrial Accident Commission, State of California.
  5. Summation of the discussion with recommendation as to future action necessary—Fenn Poole, M.D., Glendale.
- Discussion period from 11:00 to 11:30.

#### AFTERNOON

- 1:00-1:20—Sickness Absenteeism due to Upper Respiratory Infection—Rodney R. Beard, M.D., Department of Public Health and Preventive Medicine, Stanford University School of Medicine, San Francisco.
1. Relationship to production in national defense effort.
  2. Present concepts as to etiology.
  3. Evaluation of various preventive and therapeutic measures now in use.
- Moderator: L. S. Goerke, M.D., Director, Bureau of Medical Services, Department of Health, City of Los Angeles. Ten-minute discussion period.
- 1:30-1:50—Role of Industrial Nurse in Psychologic Defense—Mrs. Marion Mayne, Industrial Nursing Consultant, Los Angeles. Moderator: Christopher Leggo, M.D., Medical Director, California and Hawaiian Sugar Refining Corporation, Ltd., Crockett. Ten-minute discussion period.
- 2:00-2:20—Psychiatric Casualties in Industry—John D. Moriarty, M.D., Los Angeles, and M. M. Gilbert, M.D., Los Angeles. Moderator: Christopher Leggo, M.D., Crockett. Ten-minute discussion period.
- 2:30-3:30—Industrial Hygiene and Toxicology:
1. What's new in industrial medicine—R. T. Johnstone, M.D., Los Angeles, and Edward E. Dart, M.D., San Lorenzo.
  2. Medical problems in chemical warfare—Lt. Col. J. S. Lerner (U.S.A. Chemical Corps Reserve), Los Angeles.
- Moderator: Herbert K. Abrams, M.D., Chief, Bureau of Adult Health, Department of Public Health, State of California. Fifteen-minute discussion period.
- 3:45-4:00—Summation of Highlights of the Day's Program—Forrest E. Rieke, M.D., Portland, Oregon.

# INFORMATION

## Report of Joint Committee on Chest X-Ray

A report on mass chest x-ray surveys and on routine chest x-ray examinations in general hospitals, prepared by a joint committee representing the American College of Radiology and the American College of Chest Physicians, was released recently by the two organizations with an expression of hope that the report will "clarify any controversial problems regarding these procedures."

In an announcement accompanying the report the two medical groups said further that "it is also hoped that the broad principles upon which the report has been formulated may serve as a basis for solving any local situations which may arise concerning mass chest x-ray programs or routine chest x-ray in general hospitals."

Following are the names of members of the joint committee and the text of the report which has been approved by the board of regents of the American College of Chest Physicians and the board of chancellors of the College of Radiology:

### *Committee of the American College of Radiology:*

Leo G. Rigler, M.D., Minneapolis, Minnesota, Chairman  
 Sydney J. Hawley, M.D., Seattle, Washington  
 Russell H. Morgan, M.D., Baltimore, Maryland  
 E. P. Pendergrass, M.D., Philadelphia, Pennsylvania  
 Paul S. Swenson, M.D., Philadelphia, Pennsylvania

### *Committee of the American College of Chest Physicians:*

Otto L. Bettag, M.D., Chicago, Illinois, Chairman  
 Robert J. Anderson, M.D., Washington, D. C.  
 Hollis E. Johnson, M.D., Nashville, Tennessee  
 Edward Kupka, M.D., Berkeley, California  
 James H. Stygal, M.D., Indianapolis, Indiana

### PURPOSE OF JOINT COMMITTEE

The purpose in having a Joint Committee on Chest X-ray is that two professional organizations who have common interests may exchange ideas and formulate unified thinking on the problems involved in routine chest x-rays in hospitals (general, mental, etc.), and mass chest x-ray programs. In addition to this the committee, after considerable discussion, agreed to another point, namely: that each physician should be encouraged to have chest x-rays on all of his patients.

### LIMITS OF SURVEY

For purposes of this discussion routine chest survey examinations should be defined as those examinations of the chest which are conducted on micro-film apparatus for screening normal persons from those patients with abnormal changes in the chest. The examinations are screening and are not to be considered as diagnostic procedures. Screening method is for the purpose of detecting the presence

or absence of a lesion but should not be utilized for identifying the nature of the pathological process.

The 14x17-inch film is fundamentally a diagnostic tool and its use, therefore, makes the examination more than a screening procedure. Survey chest x-rays, either in hospitals or in general population, are approved as a screening device if conducted by agencies which utilize well qualified professional technical staffs and which make a sincere effort to send the positive individuals to qualified local physicians or clinics for proper follow-up. The methods of conducting these were discussed at length. These included surveys by the U. S. Public Health Service, etc. Dr. Newell reported on the San Francisco Medical Society's plan, whereby the medical society is responsible for the surveys but the project is financed through the local tuberculosis association.

### INTERPRETATION AND REPORT

Interpretation and reporting of medical findings is a medical matter and should bear the signature or identification of the responsible physician.

### METHOD OF REPORTING

Method of reporting of chest survey studies: This is a local matter and is by prearranged agreement between the employer and the employee in industrial surveys; in other surveys is in accord with medical ethics, according to local agreement.

### TYPE OF REPORTING

Type of reporting: The committee discourages the reporting of suspicious cases as tuberculosis. It believes this to be a clinical diagnosis. The x-ray interpreter should designate the cases that require immediate follow-up as "urgent." The small film x-ray interpretation is merely an impression.

It should be emphasized that the 14x17-inch film is a diagnostic aid and the results derived therefrom are also impressions and not diagnoses. Even the larger film is but one of several examinations necessary in order to establish correct diagnoses.

### PROFESSIONAL COMPENSATION

The professional cost of performing routine chest examinations in hospitals: The Joint Committee believes the radiologist and/or chest physician should be compensated just as any other physician practicing his profession. The procedure is time-consuming and places a definite responsibility on the radiologist or chest physician. The committee likewise felt that in this matter the basic principle of payment is by arrangement between the physician and



the hospital or agency involved. In the reading of follow-up films there should also be an individual limit to the number of films which should be read in any one day by one physician and which he should not exceed. The compensation, of course, would have to take into consideration whether the physician not only reads the film but also makes the film.

#### CLOTHING OF PATIENTS

Whether or not a screening examination can be conducted with the patient fully clothed: Since the number of lesions overlooked because of clothing (2 per cent) is considerably smaller than the normal variations of interpretation which Chamberlin, etc., have demonstrated to exist in the reading of photo-fluorographic films, it was concluded that the examination of clothed persons was as effective a procedure as examination of the undressed persons. Since examination of the fully clothed persons is an easier procedure as compared with the examination of the undressed persons, the committee agreed

that screening examination can be conducted with the patient fully clothed.

#### READERS' QUALIFICATIONS

Qualifications of readers in mass chest surveys: It was believed at the present time there was no practical method which could be used to evaluate the qualifications of a particular reader. Studies in this respect are being made at the present time. It is hoped that within a short period of time satisfactory testing methods will be available. The committee therefore agreed to leave this matter open for further discussion.

#### CONCLUSION

The two committees agreed that the bi-committee arrangement should continue and that another meeting be arranged in at least one year. In an effort to have the committees act continuously and without interruption, interim ideas should be sent to the respective chairmen and an exchange of opinions should continue during the meeting interval.

## BOOK REVIEWS

**RENAL DISEASES.** By E. T. Bell, M.D., Professor of Pathology in the University of Minnesota, Minneapolis, Minnesota. Second Edition, thoroughly revised, with 123 illustrations and four color plates. Lea & Febiger, Philadelphia, 1950. \$8.00.

This new edition of the well-known monograph first published in 1946 is up to the high standard set by its predecessor in presenting thoroughly and authoritatively certain pathological features of various renal diseases. There are many fine illustrations and the book is in general well printed. There may be some question, however, regarding the thoroughness of the revision. Tabular material has been enlarged by the added years of the author's experience, and a few new illustrations are presented (the newer staining techniques have apparently not been used). A relatively small number of references to current writings have been added to the bibliographies (the work of Addis and Oliver is not cited in the chapter on glomerulonephritis). The chief changes appear in the chapters on tubular diseases and extrarenal azotemia; the concept of lower nephron nephrosis is discussed as such in a few short paragraphs. Perhaps the author, as a pathologist, should not be criticized for his unwillingness to recognize the recent revolution in the concept of pathogenesis of edema; much of the section on renal physiology is out of date. One finds very little discussion of the lesions of periarteritis nodosa or of disseminated lupus erythematosus (the latter is classified as a specific infection of the kidneys), and in general the author avoids discussion of unusual or poorly understood renal diseases; this seems a pity, for such an authority might have been helpful to one searching for enlightenment.

Despite these criticisms, the work is highly recommended to medical students and physicians for its extensive, conservative, factual and unimaginative presentation of such standard diseases as developmental anomalies, obstruction and infection, glomerulonephritis and related lesions, and hypertensive disease.

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**WHEN MINDS GO WRONG—A Simple Story of the Mentally Ill—Past, Present and Future.** By John Maurice Grimes, M.D., twenty years a psychiatrist. Four years a staff member of the Council on Medical Education and Hospitals of the American Medical Association. Published by the Author, 5209 S. Harper Avenue, Chicago 15, Illinois. 1950. \$5.00.

Although there is no doubt whatever that the state hospitals throughout this country are in need of improvement, it is unlikely that this book will be effective in helping to bring about such reforms. The style employed by the author serves to prejudice his case from the outset, so that the reader is inclined to wonder more about the reasons for the author's frequent changes of employment than the justice of the cause which he has espoused. This is unfortunate, since many of the ideas set forth are valuable, and if followed through might well improve the care of the mentally ill. Particularly is this true of the appraisal of the type of individual who gravitates into employment as an attendant in a mental hospital. The stories of brutality set forth by the author have been amply confirmed in the press. How to rectify the situation is not, however, as simple as the author would like to infer. One thing that can be wholeheartedly subscribed to, however, is the segregation of those who may benefit from treatment from the chronic custodial problems. Although a start has been made in this direction, one cannot truthfully say that most of Dr. Grimes' accusations are not well grounded in fact.

**FREUD: DICTIONARY OF PSYCHOANALYSIS.** Edited by Nandor Fodor, Associate of the Association for the Advancement of Psychotherapy, and Frank Gaynor, Co-Author of the "Dictionary of Industrial Psychology." Philosophical Library, New York. 208 pages. 1950. \$3.75.

This book is recommended by the publishers as a genuine storehouse of information for the layman, and a useful reference work for the psychologist, psychiatrist, and psychoanalyst. It consists of quotations from the works of Freud, but good judgment is not always used in their choice. For example, the definition of depression, cyclical, is extracted from Freud's contribution on "Group Psychology and the Analysis of the Ego," and that of melancholia in another place from his book "New Introductory Lectures on Psychoanalysis," and from neither does one gather any clear definition of melancholia, nor is it indicated that depression and melancholia are one and the same. Quotations are literally torn out of context so that one gets no clear idea of many of the terms defined. Certainly the definition of affectivity as "Affectivity manifests itself essentially in motor (i.e., secretory and circulatory) discharge resulting in an (internal) alteration of the subject's own body without reference to the outer world," or of beauty as "Beauty is an instance which plainly shows that culture is not simply utilitarian in its aims, for the lack of beauty is a thing we cannot tolerate in civilization," or of traumatic hysteria as "In regard to traumatic hysteria it is obviously the accident which has evoked the syndrome," or of conscious, consciousness, as "Being conscious is an ephemeral quality which adheres to a psychical process only temporarily"—certainly such definitions add little to our knowledge of Freud's concepts and often sound like gibberish when pulled out of context.

If the layman or non-analytic physician wishes to have psychoanalytic terms defined, he would find this much better done in a general psychiatric dictionary than here; and the psychologist, psychiatrist and psychoanalyst would do better to go to the original source. Moreover, the key to references which mentions the various works from which these quotations have been torn does not mention the dates the papers were written, and as a result the uninitiated reader has no idea how Freud's ideas may have changed over the many years of his numerous publications.

This volume will not always give the reader a clear conception of psychoanalytic terms as defined by Freud and cannot be recommended for this purpose.

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**LABORATORY MANUAL FOR PHARMACOGNOSY.** By Edward P. Claus, Ph.D., Professor of Pharmacognosy, University of Pittsburgh, School of Pharmacy. Second Edition. 111 pages. The C. V. Mosby Company, St. Louis, 1950. \$3.25.

This is a laboratory manual for the use of pharmacy students in their study of medicinal agents. It is set up in the form of individual monographs for the different drugs, each consisting of a few paragraphs which describe the derivation of the product and suggest to the student what particular characteristics it may have so that he can recognize it easily. U.S.P. identification tests are usually added.

The agents described are almost all of plant origin, and include many which are of little modern medical interest. For instance, a random opening of the book shows the following substances described consecutively over a few pages: poplar bud, salacin, vanilla, vanillin, cochineal, carmine, gentian, chrysarobin.

The manual should be satisfactory and useful to pharmacy students, but would have little interest for medical students.

**CLINICAL EXAMINATION OF PATIENTS—With Notes on Laboratory Diagnosis.** By John Forbes, M.D., M.R.C.P., Physician to the Wrexham Hospitals, and W. N. Mann, M.D., F.R.C.P., Assistant Physician to Guy's Hospital. The Williams and Wilkins Company, Baltimore, 1950. \$4.50.

This is the latest in a series of small English exports which the Williams and Wilkins Company has been offering for American consumption. Written by two teachers from Guy's Hospital Medical School, it is an elementary book for English students in a stage comparable to second-year American medical students.

The book is generally good. As an introduction to diagnosis, it is thorough, clear and selective. At the end of each chapter on clinical examination there is a summary giving concise directions of procedure for the student to follow. The section on radiology of the heart may be cited as an example of good diagrammatic teaching. On the other hand, there is a tendency to oversimplification. For instance, the exercise tolerance test, which certainly has a place in practice and teaching, is summarily dismissed as "now deservedly fallen into disuse" (page 79). The loading dose for the glucose test (page 287) is given as a single specimen of 50 grams rather than 100 grams (given either singly or in two doses) which is favored in most American laboratories.

The volume can be recommended for comparison with American texts, although it has too much of a local flavor for general use.

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**THE LIVER, Porta Malarum (The Gateway to Disease).** By Kasper Blond, M.D., L.R.C.P., L.R.C.S., L.R.F.P.S., Late First Assistant of I and II Surgical Dept., Allg. Krankenhaus, Vienna, and David Haler, M.B., D.C.P., Hon. Consulting Pathologist, Westminster Hospital. The Williams and Wilkins Company, Baltimore, 1950. \$5.00.

This book attempts to show that an inefficiently functioning liver is the common factor in a number of apparently diverse states, including gastrointestinal ulceration, hemorrhoids, varicose veins, cholecystitis, nephritis, ulcerative colitis, jaundice, toxemia of pregnancy and allergic disease. In setting up this theory the authors talk bravely of getting away from preconceptions. They then fall back almost immediately on the Ancients and the pre-microscopic pathologists for authority. Such complex and tortured reasoning reminds one of certain 19th century philosophers.

The opening chapters, like Chapter I on Vasa Privata and Vasa Publica and Chapter II on the gallbladder, are intriguing if unconventional. They present the hypothesis that all organs are provided with one pair of blood vessels to nourish the tissues proper (i.e., at rest) and a second pair to supply blood during periods of work. In the case of the liver the portal vein and the bile ducts represent a one-way system of circulation which supplies the liver with blood during periods of work, whereas the hepatic artery and vein nourish it at rest.

The iconoclastic portion of the book is perhaps the best. The authors call attention to various incompletely solved problems in the hepatic and biliary systems.

As soon as they present their principal hypothesis, they speak like religious fanatics with a body of dogma to be taken on faith without support of scientific fact. The reader may judge the core of the theory in the authors' words: "All disorders of life (page 69) derive from three possible sources. The first is trauma, the two others being the entrance of poisons in the widest sense of the word by inhalation into the air passages, or by swallowing. All chemical toxins and germs enter the intestine with the intake of food, liquids or drugs, all of which have to pass through the liver filter. It is our opinion that all abdominal disorders originate from liver damage. It is possible for toxins to enter

the metabolic organs of absorption only from the absorbing surface of the intestinal tract, and thence via the portal circulation to reach the liver. By accepting our hypothesis, we shall be able to understand that a disease of one organ only is impossible, and that such single organ diseases do not exist outside our imagination or our text-books. . . .

"The solution (page 138) lies in the primary metabolic or bacterial intoxication of the liver which results in portal back-pressure. The latter may cause venous congestion in any of the organs drained by the portal vein. In some cases ulcers of the stomach develop on a varicose base; in others thrombophlebitis of the appendicular or cystic veins follows, or a chronic induration of the pancreas may develop. All these so-called clinical diseases are signs and symptoms of a disorder of the liver which involves one or more organs drained by the portal vein."

Such dogma is repeated over and over again with minor variation for angina pectoris, pancreatitis, asthma, hyperthyroidism and other conditions. The authors jump from syndrome to syndrome, not finishing one before they leap to the next. They condemn pathologists for following "Virchow's absurd theory," then present their own theories with insufficient morphological basis.

Incidentally, the literature quoted is with rare exception before 1935 and chiefly German. The authors ignore the great body of work of the past 15 years—work which does away with many of their objections to older theories.

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**THROMBOEMBOLIC CONDITIONS AND THEIR TREATMENT WITH ANTICOAGULANTS.** By Charles D. Marple, M.D., Assistant Clinical Professor of Medicine, University of California School of Medicine, San Francisco; and Irving S. Wright, M.D., Professor of Clinical Medicine, Cornell University Medical College. Charles C. Thomas, Publisher, Springfield, Illinois, 1950. 418 pages. \$8.50.

This well-published, if expensive, volume reviews in adequate detail material from the large number of contributions which have recently appeared concerning thromboembolism and its treatment by anticoagulants. The first two-thirds of the book contains sections on thromboembolic phenomena in general, mechanisms of intramuscular clotting, rationale for the use of anticoagulants, their clinical use, techniques for their administration, their complications, failures and abuses, etc. So rapidly have new papers appeared that an additional one-third of the book (about one hundred pages) repeats the subject matter of the earlier sections, but covering work published in late 1948 and 1949. An appendix discusses pertinent methods.

With its extensive bibliography, this volume represents a splendid survey of the field designated by its title. One is disappointed, perhaps, by its failure to present any report by the American Heart Association's Committee for Evaluation of Anticoagulants in the Treatment of Coronary Thrombosis with Myocardial Infarction on material analyzed since that group's preliminary report in December 1948. The authors, who are members of that committee, are well qualified by experience in this field.

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**THE 1950 YEAR BOOK OF DRUG THERAPY** (October, 1949–September, 1950). By Harry Beckman, M.D., Director, Department of Pharmacology, Marquette University School of Medicine. The Year Book Publishers, Chicago, 11, 1950.

This small selective summary of the medical literature for the past year, with editorial comment, will enable the busy practitioner to consign to the waste basket the numerous good or bad (but necessarily biased) pamphlets of the drug houses. With this handy reference, he can sleep soundly without fear that he will be overlooking some important new drug or method of therapy.

Recommended.

**THE NORMAL ENCEPHALOGRAM.** By Leo M. Davidoff, M.D., Director of Neurological Surgery, Beth Israel Hospital, New York City; Clinical Professor of Neurosurgery, New York University Postgraduate Medical School; and Cornelius G. Dyke, M.D., Late Associate Professor of Radiology, College of Physicians and Surgeons, Columbia University. Third Edition, Thoroughly Revised. 190 Illustrations on 156 Figures. Lea and Febiger, Philadelphia, 1951. 240 pages. \$6.00.

This book has, in its two previous editions, become the standard work in English on the subject. The present edition adds little to that presented before, and the changes would hardly warrant its purchase by one who possesses one of the earlier editions. It is, however, indispensable to the neurologist and neurosurgeon, and indeed to any physician who has occasion to do encephalography or interpret roentgenograms resulting from the procedure. The technique of encephalography is clearly set forth, with the reasons for the appropriate medication, choice of gas, position of the patient, and x-ray technique. Indications and contraindications are considered at length. The illustrations are well chosen and exceptionally well reproduced. In all, the book can be unreservedly recommended.

**1950 YEAR BOOK OF OBSTETRICS AND GYNECOLOGY** (August, 1949-July, 1950). Edited by J. P. Greenhill, B.S., M.D., F.A.C.S., Professor of Gynecology, Cook County Graduate School of Medicine. The Year Book Publishers, Inc., Chicago, 1950. 570 pages. \$5.00.

In 20 pages Greenhill writes the history of obstetrics and gynecology for the past ten years. This serves as an introduction to the 1950 year book, which continues to be a most complete survey of the worthwhile literature of the world.

As would be expected, the monumental work of Hertig and Rock concerning the early ovum is given as one of the important contributions. The comment by the editor should be repeated in a review of this type exactly as written: "In view of the large proportion of defective fertilized ova which never develop normally, we must stop and reflect on our extensive and expensive therapy directed toward the prevention of abortions. Naturally an effort should be made to save a pregnancy whenever possible, but to persist in the presence of repeated episodes of bleeding and uterine cramps is nearly always futile."

There are several articles on erythroblastosis fetalis reviewed in this year's book and the concise statement of the editor should be read by everyone who cares for pregnant women and their offspring. Equally worthwhile is the excellent classification discussed in the chapter on abortion. These definitions should be adopted by all authors, which would do much to clarify nomenclatures and make statistical reports on such material more easily compared.

The year book quiz brings out questions which are constantly being discussed. The answers to some of these questions are:

Cancer is eight times more common in parous than in non-parous women.

In the tuberculous patient, therapeutic abortion is probably never indicated after the first trimester.

Cesarean section is the treatment of choice of transverse presentation in a primigravida with a viable fetus and in a multipara in early labor, especially if membranes rupture prematurely.

A placenta too small for the nutrition of the fetus can cause abortion.

Leukorrhea due to trichomonas vaginalis is the leading cause of pruritus vulvae.

There is no real evidence that adoption cures infertility.

External endometriosis is significantly greater in the higher social and economic levels.

Expectant treatment of menorrhagia should never be carried out when it is associated with a pelvic lesion or intermenstrual spotting.

The vaginal mucosa is more sensitive to ovarian hormones than the endometrium.

Having reviewed the "Year Book of Obstetrics and Gynecology" for the past several years, I feel that the 1950 edition is as fine a review as has ever been published. The editor's notes are those of a seasoned obstetrician and gynecologist and an excellent author.

This book again gives the busy physician a fine summary of the important world literature in this specialty.

**EMOTIONS AND CLINICAL MEDICINE.** By Stanley Cobb, M.D., Bullard Professor of Neuropathology, Harvard Medical School, Psychiatrist-in-Chief, Massachusetts General Hospital. With an Introduction on Semantics and Definitions by John R. Reid, Ph.D., Professor of Philosophy, Stanford University, Visiting Lecturer on Psychiatry, Harvard Medical School. W. W. Norton & Company, Inc., New York, 1950. 243 pages. \$3.00.

This small volume written by a man fundamentally trained in neuropathology but now devoted to psychiatry is interesting from many aspects. In the first place, it is very revealing of the conflicts in discipline between these two branches of medicine, and the compromises effected by Dr. Cobb give some insight into his own personality. This is not a book which gives all the answers to the physician desiring a shortcut to the treatment of what are now popularly called psychosomatic syndromes. It presents, rather, the author's thinking about the relation of the emotions to disease, and, because of his background both in the organic and the functional, is well worth reading. Although at times it is rather uninspired in style, the effort of reading it is repaid by the revelation of how at least some of the concepts set forth by the more progressive schools of psychiatry can be reconciled with what we know of the physiology of the nervous system.

**DISEASES OF WOMEN.** By Ten Teachers Under the Direction of Clifford White, M.D. Edited by Clifford White, Frank Cook, and Sir William Gilliat. Eighth Edition. The Williams and Wilkins Company, Baltimore, 1949. \$5.25.

A book by ten English physicians, which is complete and fairly well illustrated. It presents nothing particularly unusual. The chapter on anatomy seems exceptionally well written. Carcinoma in situ, which receives so much consideration in the United States, is not mentioned.

The style of presentation is quite satisfactory, but there is nothing which makes this book outstanding. It is not a complete, exhaustive survey of the subject, yet it is more than an outline. It seems doubtful, in spite of the fact that this is the eighth edition of a book written under the direction of the late Sir Comyns Berkeley, that it will take an important place in English gynecology.